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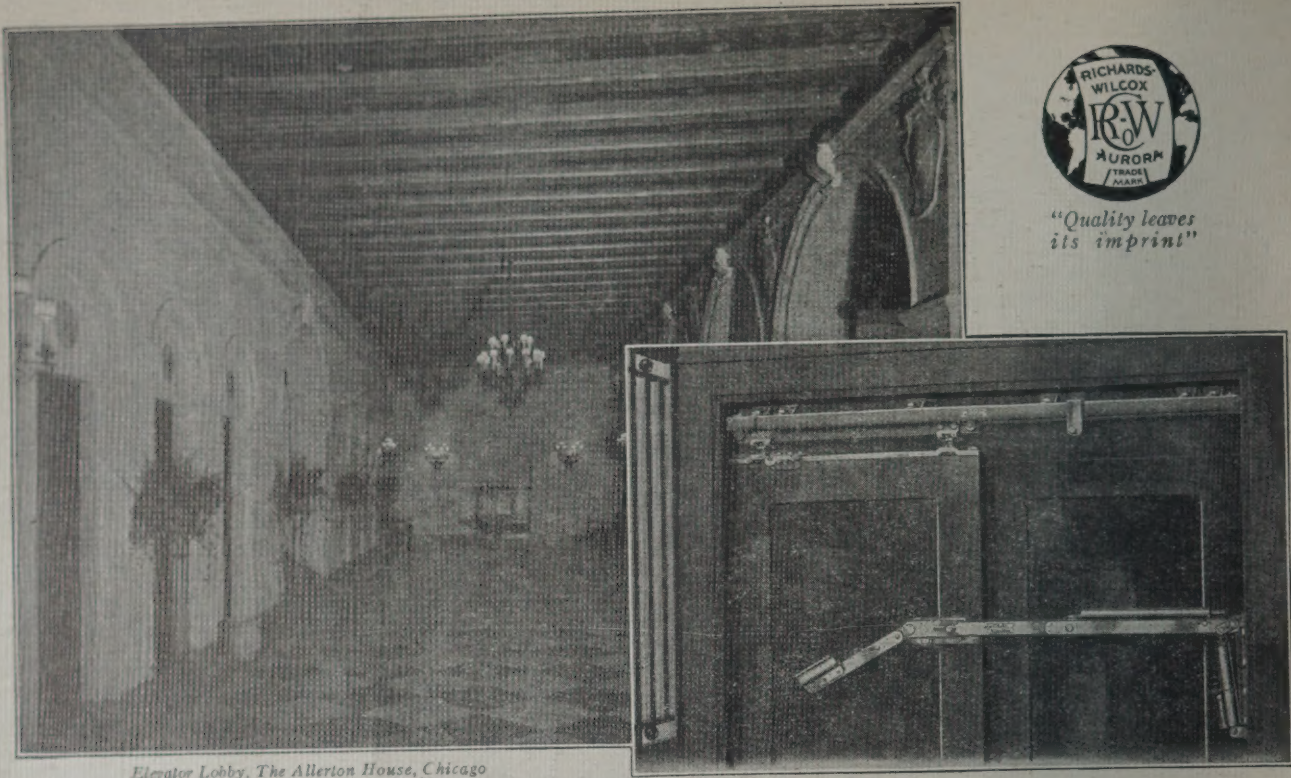

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INDEX TO VOLUME XLIII

JULY TO DECEMBER INCLUSIVE, 1925

Index to Illustrations According to Subject

KEY TO PAGES AND PLATES

	Pages	Plates
July	1-64	**1-16**
August	65-120	**17-32**
September	121-184	**33-56**
October	185-256	**57-72**
November	257-320	**73-88**
December	321-384	**89-104**

***Illustrated ex., exterior; in., interior; pl., plan.**

BUILDINGS (Complete)

Apartments Arlington Apartments, Chicago. ex. pl. **55**
Ashland, Ky., ex. pl. 159
Atlanta, Ga., 696 Peachtree St., ex. 123
Beekman Terrace, New York. ex. pl. Frontis., Sept. **56**
"Bolton Gardens," Bronxville, N. Y., ex. 131-133
Boston, 32 River St., ex. pl. 126
Boston, 97 Mount Vernon st., ex. pl. **39, 40**
Boston, Cor. Berkeley & Marlborough Sts., ex. pl. **37, 38**
Boston, Shop and Apartment Building, ex. pl. **49**
Brooklyn Heights Apartments, Brooklyn, ex. pl. **33, 34**
Brooklyn, ex. pl. 158
Cabot Hall, Bronxville, N. Y., ex. pl. 127
Carlton Apartments, Baltimore, ex. 121
"Custer Arms," Bronxville, N. Y., ex. pl. ..145
Dallas, Texas, Four-Apartment Building, ex. pl. 163, 164
Evanston, Ill., Cor. Hinman Ave. & Lee St., ex. pl. **54**
Evanston, Ill., ex. pl. **50**
Fort Sanders Manor, Knoxville, Tenn., ex. pl. **43, 44**
Guilford Manor Apartments, Baltimore, ex. pl. 143, **41, 42**
Henderson Apartments, Knoxville, Tenn., ex. pl. 125
Hudson View Apartments, New York, ex. in. 147-149, 151, 152
Jacksonville, Fla., 310 West Church St., ex. 122
Knoxville, Tenn., 1634 Laurel Ave., ex. pl. ..**51**
Laramie, Wyo., ex. pl. 154
Larchmont, N. Y., ex. pl. 169, 170
Latham Apartments, Columbus, Ohio, ex. in. pl. 179, 180, 183, **45, 46**
Laurel Heights Apartments, Knoxville, Tenn., ex. pl. 124
Long Island City, N. Y., ex. pl. 155
"Merestone Terrace," Bronxville, N. Y., ex. 131, 134, 135
Minneapolis, Small Cooperative Apartment, ex. pl. 146
New York, 21 West 58th St., ex. pl. **35, 36**
New York, 53 East 66th St., ex. pl. **47, 48**
New York, 277 Park Ave., ex. pl. **9-11**
"Oak Court Terrace," Bronxville, N. Y., ex. pl. 161, 162
Peldean Court, Pelham, N. Y., ex. pl. ..148, 150
Rebori, A. N., Cooperative Apartments, Chicago, ex. pl. **52**
Rhinelander Apartments, Washington Square North, New York, ex. pl. **53**
"Scarsdale Apartments," Scarsdale, N. Y., ex. pl. 130
Scarsdale, N. Y., Store and Apartment Buildings, ex. pl. 129
Standish Hall, Bronxville, N. Y., ex. pl.127, 128

Aquariums Steinhart Aquarium, San Francisco, ex. in. pl. 7, 8, **7, 8**

Banks Adirondack Trust Co., Saratoga Springs, N. Y., ex. 71
Akron Savings & Loan Co., Akron, Ohio, ex. in. 266-268, 270
City National Bank, Binghamton, N. Y., ex. in. 73, 74
Commercial Trust Co., New Britain Conn., ex. 269
Mechanics' National Bank, Trenton, N. J., pl. 70
Savings Deposit Bank & Trust Co., Elyria, N. Y., ex. 69
Suffern National Bank, Suffern, N. Y., ex. in. 72

Churches First Baptist Church, Plainfield, N. J. (Prize Design) 262-264

Clubs D. U. Club, Harvard University, Cambridge, ex. in. pl. 373, 374
Fayetteville Country Club, Fayetteville, N. C., ex. in. pl. 27, 28
Iroquois Club, Harvard University, Cambridge, ex. pl. 369, 370
Olympia Fields Country Club, Olympia Fields, Ill., ex. in. pl. 278-280, **85-88**
Roanoke, Va., Country Club, ex. in. pl. ..75, 76
S. K. Club, Harvard University, Cambridge, ex. pl. 361, 362

College Buildings Faculty Houses, Princeton University, Princeton, ex. in. pl. ..165, 166, 181
Social Center, Wesley Foundation, University of Illinois, Urbana, Ill., ex. in., ...339, 341-345
Yost Field House, University of Michigan, Ann Arbor, Mich., ex. 335
Y. M. C. A., University of Washington, Seattle, Wash., ex. 346

Dormitories Brown University, Providence, ex. 349, 352
Chicago Theological Seminary, "Efficiency Dormitory," ex. pl. 384
Columbia Theological Seminary, Columbia, S. C., ex. **94**
Conneticut College for Women, New London, Conn., ex. pl. **103**
Cornell University, Ithaca, N. Y., ex. .350, 351
Dartmouth College, Hanover N. H., ex. pl. **97, 98**
Franklin and Marshall College, Lancaster, Pa., ex. 348
Harvard University, Cambridge, ex. pl. **99**
Pennsylvania State College, ex. 349
Princeton University, Princeton, ex. pl., ...325, 328, 330-332, 347, **101**
Smith College, Northampton, Mass., ex. pl.**102**
Theological College for Lay Workers, Richmond, Va., ex. pl. **95**
University of Delaware, ex. 347, 348, 352
University of Illinois, Urbana, Ill., ex. pl. ..**100**
University of Saskatchewan, Saskatoon, Can., ex. pl. **104**
University of Texas, Austin, Texas, ex. pl. ..**96**
Yale University, New Haven, ex. 324

Fraternity Houses Alpha Delta Phi, University of Illinois, Urbana, Ill., ex. pl.356, 367, 368
Delta Phi, University of Illinois, Urbana, Ill., ex. 355
Delta Tau Delta, Dartmouth College, Hanover, N. H., ex. in. pl. 358, 375, 376
Kappa Kappa Kappa, Dartmouth College, Hanover, N. H., ex. in. pl. 360, 371, 372
Phi Delta Theta, University of Illinois, Urbana, Ill., ex. pl. 365, 366
Phi Kappa, University of Illinois, Urbana, Ill., ex. 354
Psi Upsilon, University of Illinois, Urbana, Ill., ex. 353
Sigma Nu, Dartmouth College, Hanover, N. H., ex. in. pl. 357, 359, 363, 364
Sigma Pi, University of Illinois, Urbana, Ill., ex. 358

Government Buildings United States Treasury Annex, Washington, ex. pl. **28, 29**

Gymnasiums Manhattan College, Riverdale-on-Hudson, N. Y., ex. pl. 334, **93**
North Carolina State College of Agriculture, Raleigh, N. C., ex. pl. 334, **89**
Richmond College, Richmond, Va., Millhiser Memorial Gymnasium, ex. 335
Smith College, Northampton, Mass., ex pl., ...334, 335, **92**
University of Illinois, Urbana, Ill., ex. pl., ...333, 334, **91**
University of Indiana, Bloomington, Ind., ex. in. pl. 336, **90**
University of Oregon, Eugene, Ore., ex. ...322
Yale University, New Haven, ex. ....Frontis., December

Hotels Casa de Manana, La Jolla, Cal., ex. in. pl. 209-212, **62-64**
New Nicollet Hotel, Minneapolis, ex. in. pl. 287, 288, **81-84**

Houses Battelle, Seavey, Rye, N. Y., ex. in. pl. **14-16**
Bogue, Miss Edith, Montclair, N. J., ex. in. pl. 237, 238
Butler, F. W., St. Paul, ex. pl. 245, 246
Christienson, Theodore, St. Paul, ex. in. pl., ...243, 244
Day, J. W., Douglaston, N. Y., ex. pl. .225-230
Forman, Charles, Winnetka, Ill., ex. in. pl., ...219-224, **65-67**
Greig, Paul, St. Paul, ex. in. pl. 241, 242
McDonald, W. C., Winnetka, Ill., ex. pl., ...247, 248
Nobbe, Frank, St. Albans, N. Y., ex. in. pl. 239, 240
Rogers, Francis, New Rochelle, N. Y., ex. pl. 235, 236
Thorn, Grant, New Rochelle, N. Y., ex. pl. 231-234
Wilson, John P., Chicago, ex. in. pl.81, 82, **22-24**
Warbrook, Eversley, Hampshire, England, ex. in 89-96

Houses—Two-Family and in Groups Boggis, J. J., Cleveland, ex. in. pl. 167, 168
Bristol, Tenn., ex. 175
Bronxville, N. Y., ex. pl. 171, 172
Brooklyn, ex. pl. 156
Flushing, N. Y., ex. in. pl. 173, 174
Mariemont, Ohio, ex. pl. 176
Montreal, ex. 175
Orange, N. J., ex. pl. 157

Libraries Branch Building, Chicago Public Library, Chicago, ex. in. pl. **25-27**
Columbia University, New York, ex. 323

Markets The Market Hall, Taunton, Somerset, England, ex. 21-26

Memorials Maryland War Memorial, Baltimore, ex. in. pl. 66-68, **17-19**
Memorial to First Division, Washington....**31**
New York State Roosevelt Memorial (Winning design in competition for selection of an architect) 9, 10
Southampton, N. Y., War Memorial, ex. pl. 11, 12, **5, 6**

Museums California Palace of the Legion of Honor, San Francisco, ex. in. pl. 201-208

Office Buildings Elizabeth Daily Journal Building, Elizabeth, N. J., ex. in. pl. ...**12, 13**
Kansas City Life Insurance Company Bldg., Kansas City, ex. in. pl. 191, 192, **68-72**
Medical Arts Building, Montreal, ex. pl. **32**
Morris Building, The G. L., Pasadena, ex. pl. **30**
Tribune Tower, Chicago, ex. pl. ....Frontis. October 186-190, **57-61**

Schools—Grade Brown, Sheldon L., Schoolhouse, Wellesley, Mass., ex. pl. 49, 50
Hardy, John D., Schoolhouse, Wellesley, Mass., ex. pl. 45, 46
Jefferson Schoolhouse, Sacramento, Cal., ex.35
Kensington Schoolhouse, Great Neck, N. Y., ex. 35
Lakewood Schoolhouse, Madison, Wis., ex. .34
Mansfield, Mass., ex. 39
Melrose, Mass., Ward 7 Schoolhouse, ex. pl., ...43, 44
Mystic Schoolhouse, Winchester, Mass., ex. .39
Noonan Schoolhouse, Winchester, Mass., ex. pl. 40, 41
One-teacher Schools, State of Delaware, ex. pl. 36, 37
Seaver Street Schoolhouse, Wellesley, Mass., ex. pl. 47, 48
Southern Pines, N. C., ex. pl. 51, 52
Springfield, Vt., Summer St. Schoolhouse, ex. 33
Tolman Schoolhouse, Stoughton, Mass., pl. .38
West Terrace Schoolhouse, Claremont, N. H., ex. 34
Whiting Schoolhouse, Laramie, Wyo., ex. in. pl. 55, 56

Schools—High Kennebunk, Me., ex. pl. ...53, 54

Stadiums Franklin Field Stadium, University of Pennsylvania, Philadelphia. ..379, 380, 382
Memorial Field Stadium, Dartmouth College, Hanover, N. H 380, 381
University of Colorado, Boulder, Colo. 382
University of Illinois, Urbana, Ill. 378, 379
Yale Bowl, Yale University, New Haven (Airplane View) 377

Stores Cuningham Showrooms, Los Angeles, ex. 112
Store and Apartment Buildings, Scarsdale, N. Y., ex. pl. 129

Synagogues Temple Tifereth Israel, Cleveland, ex. in. pl. 258-260, **73-80**

Theaters Community Playhouse, Pasadena, ex. in. pl. 77-80, **20, 21**
Guild Theater, New York, ex. in. pl., ...Frontis., July, 13-16, **1-4**

Town Halls Dover, Mass., ex. pl. ..293, 307, 308
Greenfield, N. Y., ex. 291
Huntington, N. Y., ex. in. pl. 301, 302
Independence Hall, Philadelphia, ex. 289
Kennebunk, Me., ex. pl. 309, 310
Municipal Building, Plainfield, N. J., ex. in. pl. 296, 299, 300
Newcastle, Del. (Built about 1750), ex. 296
Old State House, Boston, ex. pl. 289, 294
Peterboro, N. H., ex. in. pl. 311, 312
Philippine Islands, ex. 295

Index to Illustrations According to Subject—*Continued*

- Plattsburg, N. Y., ex....290
- Reading, Mass., ex....292, 293
- Robbins Memorial Town Hall, Arlington, Mass., ex. in. pl....297, 298
- Tewksbury, Mass., ex. in. pl....303, 304
- Weston, Mass., ex. pl....305, 306

GARDENS

- Patio of the Casa de Manana, La Jolla, Cal...**62**
- **Garden Court** Olympia Fields Country Club, Olympia Fields, Ill....280
  - California Palace of the Legion of Honor, San Francisco....204

INTERIORS

- **Auditoriums** Community Playhouse, Pasadena....**21**
  - Guild Theatre, New York....16, **4**
  - Maryland War Memorial, Baltimore....68, **19**
  - Robbins Memorial Town Hall, Arlington, Mass....298
- **Aquariums** Steinhart Aquarium, San Francisco.... 8, **8**
- **Court Rooms** Town Hall, Huntington, N. Y.302
  - Municipal Building, Plainfield, N. J....296
- **Dining Rooms** Forman, Charles, Winnetka, Ill....222
  - Harvard Freshman Dormitories, Cambridge, ...338-340
  - Napoleon's Apartments, Fontainebleau (detail drawings)....313-318
  - Olympia Fields Country Club, Olympia Fields, Ill....**88**
  - Roanoke Country Club....76
  - University of Michigan Law School, Ann Arbor, Mich....338
  - Warbrook, Eversley, Hampshire, England..90
  - Wilson, John P., Chicago....24
- **Directors' Rooms** City National Bank, Binghamton, N. Y....73
- **Drawing Rooms** Faculty Houses, Princeton University, Princeton....181
  - Latham Apartments, Columbus, Ohio...180, 183
  - New York, 180 East 75th St....180, 184
  - Warbrook, Eversley, Hampshire, England..91
  - Wilson, John P., Chicago....81, 82, **23**
- **Halls and Corridors** Boston, 601 Beacon St., ...178, 179
  - Forman, Charles, Winnetka, Ill....221
  - Garden Apartments, Chicago....182
  - Guild Theater, New York....15
  - Latham Apartments, Columbus, O....179
  - New York, 123 Waverley Place....177
  - New York, 180 East 75th St....178
  - Town Hall, Peterboro, N. H....312
  - Town Hall, Tewksbury, Mass....304
  - Warbrook, Eversley, Hampshire, England, ...90, 93
  - Wilson, John P., Chicago....81
- **Libraries** Municipal Building, Plainfield, N. J....300
- **Living Rooms** (See Drawing Rooms)
- **Lobbies** Branch Building, Chicago Public Library, Chicago....**27**
  - Guild Theater, New York.... **2**
  - Kansas City Life Insurance Company Bldg., Kansas City....**71**
  - New Nicollet Hotel, Minneapolis....288, **83**
- **Lounges** Delta Tau Delta House, Dartmouth College, Hanover, N. H....376
  - D. U. Club, Harvard University, Cambridge. 374
  - Fayetteville Country Club, Fayetteville, N. C....28
  - Guild Theater, New York....**2, 3**
  - Harvard Freshman Dormitories, Cambridge, ...337, 340
  - Kappa Kappa Kappa House, Dartmouth College, Hanover, N. H....360, 372
  - Lampoon Building, Harvard University, Cambridge....338
  - Olympia Fields Country Club, Olympia Fields, Ill....**88**
  - Roanoke Country Club....76
  - Sigma Nu House, Dartmouth College, Hanover, N. H....359
  - University of Indiana, Bloomington, Ind....336
  - Vanderbilt University, Nashville, Students' Memorial Building....339
  - Wesley Foundation, University of Illinois, Urbana, Ill....339
- **Museums** Tapestry Gallery, California Palace of the Legion of Honor, San Francisco...205
- **Private Offices** Elizabeth Daily Journal Building, Elizabeth, N. J....**12, 13**
  - President's Office, Kansas City Life Insurance Co. Bldg., Kansas City....**72**
- **Reading Rooms** Branch Building, Chicago Public Library, Chicago....**25**
- **Swimming Pools** Smith College, Northampton, Mass....335
- **Synagogues** Temple Tifereth Israel, Cleveland....**76-80**

ARCHITECTURAL DETAILS

- **Balcony** Temple Tifereth Israel, Cleveland...**77**
- **Colonnade** Maryland War Memorial, Baltimore (Classic)....**17, 18**
- **Doorways, Ext.** Apartment, Berkeley & Marlborough Sts., Boston (Georgian)....**38**
  - Apartment, 21 West 58th St., New York (Byzantine)....**36**
  - Apartment, 53 East 66th St., New York (Eng. Ren.)....**48**
  - Brooklyn Heights Apartments, Brooklyn (Tudor)....**34**
  - Casa de Manana, La Jolla, Cal. (Spanish)...**63**
  - Delta Tau Delta House, Dartmouth, College, Hanover, N. H. (Col.)....376
  - Guild Theater, New York (It. Ren.).... **1**
  - Gymnasium, University of Illinois, Urbana, Ill. (Eng. Ren.)....**91**
  - Gymnasium, University of Indiana, Bloomington, Ind. (Tudor)....**90**
  - Gymnasium, North Carolina State College of Agriculture, Raleigh, N. C. (neo-Classic)..**89**
  - Gymnasium, Smith College, Northampton, Mass. (Composite)....**92**
  - House, Battelle, Seavey, Esq., Rye, N. Y. (Col.)....**15**
  - Iroquois Club House, Harvard University, Cambridge (Adam)....370
  - Kansas City Life Insurance Co. Building, Kansas City (Classic)....**70**
  - Kappa Kappa Kappa House, Dartmouth College, Hanover, N. H. (Col.)....372
  - Latham Apartments, Columbus, Ohio (Eng. Ren.)....**46**
  - Sigma Nu House, Dartmouth College, Hanover, N. H. (Georgian)....357
  - Social Center, Wesley Foundation, University of Illinois, Urbana, Ill. (Eng. Ren.) 343, 345
  - Standish Hall, Bronxville, N. Y. (Col.)....128
  - Sussex Hall, University of Delaware (Georgian)....347
  - Temple Tifereth Israel, Cleveland (Byzantine)....**75**
  - Tribune Tower, Chicago (Gothic)....**58, 59**
  - Whiting Schoolhouse, Laramie, Wyo. (Gothic)....56
- **Doorways, Int.** Battelle, Seavey, Esq., Rye, N. Y. (Col.)....**16**
  - Elevator Doors, Tribune Tower, Chicago (bronze)....**60**
  - Wilson, John P., Esq., Chicago (Georgian)..**23**
- **Fireplaces** Battelle, Seavey, Esq., Rye, N. Y. (Col.)....**16**
  - House, Flushing, N. Y. (Col.)....174
  - Warbrook, Eversley, Hampshire, England (Two) (Detailed drawing)....94
- **Interiors, French** Imperial Theater at Fontainebleau (measured drawings)....250-254
  - Napoleon's Bedroom, Compeigne (measured drawings)....113-118
  - Small Salon, Hotel Gouthiere, Paris (measured drawings)....57-62
- **Metal Work** Balustrade, Stairway, House, Wilson, John P., Chicago (Wrought Iron) 81
  - Elevator Doors, Tribune Tower, Chicago (Bronze)....**60**
- **Pediments** California Capitol, Sacramento, Cal., Edward Field Sanford, Sculptor...1, 4-6
  - Capitol of Wisconsin, Karl Bitter, Sculptor.. 3
  - Capitol of Wisconsin, A. A. Weinman, Sculptor.... 3
  - New York Stock Exchange, J. Q. A. Ward, Sculptor.... 3
  - Pediments of the Parthenon (From Models in Metropolitan Museum).... 2
  - Temple of Zeus, Olympia (From Restoration in Metropolitan Museum).... 2
- **Porches** Battelle, Seavey, Rye, N. Y. (Col.)...**15**
  - Seaver St. Schoolhouse, Wellesley, Mass. (Col.)....48
- **Porticoes** California Palace of the Legion of Honor, San Francisco....202
  - Mercer Manor, Princeton, (Originally on Phila. Mint, built about 1820)........Frontis, August
  - Town Hall, Kennebunk Me. (Col..)....309
- **Organ Screen** Maryland War Memorial, Baltimore, Md....66, **19**
- **Sculpture and Carving** Pediments of California Capitol, Sacramento....1, 4-6
  - Pediment of the Capitol of Wisconsin, A. A. Weinman, Sculptor.... 3
  - Pediment of the Capitol of Wisconsin, Karl Bitter, Sculptor.... 3
  - Pediment of New York Stock Exchange.... 3
  - Pediments of the Parthenon (From Models in Metropolitan Museum).... 2
  - Pediments of the Temple of Zeus at Olympia (From Restoration in Metropolitan Museum).... 2
  - Tribune Tower, Chicago....**61**
- **Stairways** Battelle, Seavey, Rye, N. Y. (Col.) **16**
  - Forman, Charles, Winnetka, Ill. (Curved)..220
  - Warbrook. Eversley, Hampshire, England (Detailed Drawing)....91, 93
  - Wilson, John P., Chicago, Ill. (Curved)....81
- **Stages** Maryland War Memorial, Baltimore, 68, **19**
- **Store Fronts** Typical Recessed Shop Fronts 98-112
- **Sun Dial** Warbrook, Eversley, Hampshire, England (Detailed Drawing)....95

Index to Articles According to Subject

- **Apartments** Cooperative Apartment Buildings, Arthur E. Curtis....143
  - *Design and Plan of Small City Apartment Buildings, R. E. Lee Taylor....121
  - *Efficiency Apartments, George F. Pelham, Jr....147
  - *Features Which Help to Rent Apartment Houses, C. Stanley Taylor....137
  - *Interior Finish and Fixtures of Apartment Houses, Leigh French, Jr....177
  - *New Features in Apartment House Building, A. E. MacDougall....153
  - *Suburban Apartment House, The, John Taylor Boyd, Jr....131
  - Success of Metropolitan Apartments........August Ed. Forum 51
- **Architecture** *Architecture of the Small Shop, The, Part II. Increasing Display Frontage by the Use of Metal and Glass Windows..97
  - *Banks and Bank Buildings, Alfred Hopkins, Part I....89
    Part II 265
  - *Design and Plan of Small City Apartment Buildings, R. E. Lee Taylor....121
  - *Educational Influence of Collegiate Architecture, The, A. D. F. Hamlin....321
  - *New Features in Apartment House Building, A. E. MacDougall....153
  - *Problem of the Pediment, The, Matlack Price.... 1
  - *Savannah's Architectural Background (Sketches by William P. Spratling)....273
  - *Smaller Civil Architecture of England, The, Roger Wearne Ramsdell and Harold Donaldson Eberlein
    - Part VI. The Market Hall, Taunton, Somerset....21
  - *Spanish Architecture in the Modern Hotel, Boardman Pickett....209
  - *Warbrook, Eversley, Hampshire, England, Harold Donaldson Eberlein....89
- **Associations** Allied Architects of Washington, Inc. New Organization Formed.
  July Ed. Forum 55
  - American Institute of Architects
    - Award of Medals to Architectural Students....Aug. Ed. Forum 51
  - American Prison Association
    - Report on Prison Buildings of Dr. Hastings W. Hart....Dec. Ed. Forum 51
  - National Association of Building Owners and Managers, Address of Andrew J. Thomas regarding Industrial Housing........July Ed. Forum 55
- **Building Costs** Building Situation..29, 83, 213, 281
  - Important Principles of Architectural Economics, James M. Green, Jr. Part II. The Financial Analysis of a Project....30
- **Building Economics** Building Situation........29, 83, 213, 281
  - Important Principles of Architectural Economics, James M. Green, Jr. Part II. The Financial Analysis of a Project....30
  - Lumber Standardization...Sept. Ed. Forum..55
- **Buildings, Description of** *California Palace of the Legion of Honor, The, San Francisco, Leigh French, Jr....201
  - *Community Playhouse, The, Pasadena, Margaret Craig....77
  - *Fayetteville Country Club, Fayetteville, N. C....27
  - *Guild Theater, The, New York....13
  - *Imperial Theater at Fontainebleau, The, Samuel E. Gideon....249
  - *Kansas City Life Insurance Company Building....191
  - *Maryland War Memorial, Baltimore, John H. Scarff....65
  - *Nicollet Hotel, The, Minneapolis....287
  - *Olympia Fields Country Club, Olympia Fields, Ill....277
  - *Steinhart Aquarium, The, San Francisco.... 7
  - *Temple Tifereth Israel, Richard R. Stanwood....257
  - *Tribune Tower, The, Chicago....185
  - *War Memorial at Southampton, N. Y., The..11
- **College Buildings** *College Club and Fraternity Buildings, Mary A. Rolfe....553
  - *College Y. M. C. A. and Religious Buildings, Rexford Newcomb....341
  - *Common Rooms and Dining Halls, Leigh French, Jr....337
  - *Dormitory Designs by Day & Klauder, Matlack Price....347
  - *Educational Influence of Collegiate Architecture, The, A. D. F. Hamlin....321

*Interesting Possibilities of "Efficiency Plan" Dormitories, C. Stanley Taylor............383
*Planning Gymnasiums, Aaron G. Alexander.333
*Planning of Dormitories, The, Robert McLaughlin 327

Competitions Award in Roosevelt Memorial Competition................July Ed. Forum 55
Nov. Ed. Forum 51

*Competition for the Design of the First Baptist Church, Plainfield, N. J...............261
Competition for Octagon House Tablet.... ....Dec. Ed. Forum 51
Harding Memorial Award, Aug. Ed. Forum 51
House Beautiful Cover Competition, The, ...Dec. Ed. Forum 51
*Prize-winning Drawings of the Ideal Cellar Competition.................................193

Design *Architecture of the Small Shop, The, Part II. Increasing Display Frontage by the Use of Metal and Glass Windows.......97
*Banks and Bank Buildings, Alfred Hopkins, ...Part I 89
Part II 265
*College Club and Fraternity Buildings, Mary A. Rolfe..353
*College Y. M. C. A. and Religious Buildings, Rexford Newcomb..........................341
*Combining Furniture of Different Periods, Alfred Lowden..............................255
*Common Rooms and Dining Halls, Leigh French, Jr.....................................337
*Community Playhouse, The, Pasadena, Cal..77
*Decorative Walls and Backgrounds, Pierre Dutel...319
*Design and Craftsmanship in Early American Silver, Edwin J. Hipkiss, Part II........119
*Design and Plan of Small City Apartment Buildings, R. E. Lee Taylor...............121
*Designing and Planning of Stadiums, Mary A. Rolfe.......................................377
*Dining Room in Napoleon's Apartments at Fontainebleau, C. Hamilton Preston......313
*Dormitory Designs by Day & Klauder, Matlack Price......................................347
*Efficiency Apartments, George F. Pelham, Jr...147
*House of Charles Forman, Esq., Winnetka, Ill. 219
*House, John P. Wilson, Esq., Chicago.......81
*Imperial Theater at Fontainebleau, The, Samuel E. Gideon..........................249
*Interesting Possibilities of "Efficiency Plan" Dormitories, C. Stanley Taylor............383
*Interior Finish and Fixtures of Apartment Houses, Leigh French, Jr.................177
*Interiors in the Early Italian Renaissance Style, Alfred Lowden......................63
*Napoleon's Bedroom at Compeigne, C. Hamilton Preston...............................113
*Planning of Dormitories, The, Robert McLaughlin 327
*Planning Gymnasiums, Aaron G. Alexander.333
*Problem of the Pediment, The, Matlack Price 1
*Savannah's Architectural Background (with Sketches by William P. Spratling).......273
*Small Salon, Hotel Gouthiere, Paris.........57
*Small Schoolhouse, The, Charles G. Loring..33
*Small Town Hall, The, Charles G. Loring...289
*Spanish Architecture in the Modern Hotel, Boardman Pickett..........................209
*Suburban Apartment House, The, John Taylor Boyd, Jr...................................131
*Use of Half Timber, Stucco and Brick Shown in Some Recent Work of Frank J. Forster. 225
*Warbrook, Eversley, Hampshire, England, Harold Donaldson Eberlein.................89

Education Prix de Rome Fellowship Awards July Ed. Forum 55
Traveling Scholarship Award by Beaux Arts Institute of Design........July Ed. Forum 55

Engineering *Power and Heating Plants—The Generating Plant; Boilers, J. J. Cosgrove Part II 85
Part III 215
Commercial Types of Boilers and Furnaces..283

Housing "Garden Apartments to Replace Slums." Booklet by Andrew J. Thomas. July Ed. Forum 55

Landscape Architecture Planting in Relation to Architecture, Elsa Rehmann............17

Materials Lumber Standardization Sept. Ed. Forum 55
Sixteenth Century Glass...Aug. Ed. Forum 51

Obituary Wight, Peter Bonnett, Nov. Ed. Forum 51

Index to Illustrations According to Architect

A

Adden & Parker, Town Hall and Town Building, Reading, Mass., ex................292, 293
Alschuler, Alfred S., Branch of Chicago Public Library, Chicago, ex. in. pl.............**25-27**
Ames, J. W., Gymnasium, Smith College, Northampton, Mass., ex. in. pl. (E. S. Dodge, Associated).................334, 335, **92**
Dormitories, Smith College, Northampton, Mass., ex. pl. (E. S. Dodge and K. S. Putnam, Associated).....................**102**
Applegarth, George A., California Palace of the Legion of Honor, San Francisco, ex., in pl. 201-208

B

Baker, Charles M., John D. Hardy Schoolhouse, Wellesley, Mass., ex. pl........45, 46
Seaver Street Schoolhouse, Wellesley, Mass., ex. pl. (Benjamin Proctor, Jr., Associated) 47, 48
Ward 7 Schoolhouse, Melrose, Mass., ex. pl. 43, 44
Barber & McMurray, Apartment, 1634 Laurel Ave., Knoxville, Tenn., ex. pl..............**51**
Fort Sanders Manor, Knoxville, Tenn., ex. pl. **43, 44**
Henderson Apartments, Knoxville, Tenn., ex. pl...125
Laurel Heights Apartments, Knoxville, Tenn., ex. pl...............................124
Baskerville & Lambert, Dormitory, Theological College for Lay Workers, Richmond, Va., ex. pl..**95**
Bates & Howe, Bolton Gardens, Bronxville, N. Y., ex................................131-133
"Oak Court Terrace," Bronxville, N. Y., ex. pl................................161, 162
Standish and Cabot Halls, Bronxville, N. Y., ex. pl................................127, 128
Two House Group at Bronxville, N. Y., ex. pl..................................171, 172
Baylinson, S. Brian (see Frank E. Hahn)
Bebb & Gould, Y. M. C. A., University of Washington, Seattle, Wash., ex...........346
Benson & Son, Phi Kappa House, University of Illinois, Urbana, Ill., ex....................354
Bessell, Wesley Sherwood, Kensington Schoolhouse, Great Neck, N. Y., ex.............35
Bettis, Charles Hunter (see C. Howard Crane)
Bigelow & Wadsworth, Town Hall, Weston, Mass., ex. pl..........................305, 306
Blackall, Clapp & Whittemore, Delta Tau Delta House, Dartmouth College, Hanover, N. H., ex. in. pl.................358, 375, 376
Bodker, Albert J., Apartment, 21 West 58th St., New York, ex. pl..........................**35, 36**
Bottomley, William Lawrence (see Laurence F. Peck)
Bradshaw, Preston J., Candy Shop, St. Louis, ex. 108
Brainerd & Leeds, Sheldon L. Brown Schoolhouse, Wellesley, Mass., ex. pl.........49, 50
Sumner Street Schoolhouse, Springfield, Vt. ex. 33
West Terrace Schoolhouse, Claremont, N. H., ex. 34
Brown, David- R., Students' Residence, University of Saskatchewan, Saskatoon, Can., ex. pl. (Hugh Vallance, Associated)......**104**
Bullard, Roger H., Double House, Flushing, N. Y., ex. in. pl.....................173, 174
Butler & Corse, Stair Hall, 601 Beacon St., Boston, in.............................178, 179
Butler & Rodman, Entrance Hall, 123 Waverley Place, New York, in................177

C

Carpenter, J. E. R. (see Treanor & Fatio)
Cellarius, Charles F., Two-family House at Mariemont, O., ex. pl.......................176
Cervin & Horn, Delta Phi House, University of Illinois, Urbana, Ill., ex................355
Clawson, Harry M., Stair Hall and Living Room, Apartment, 180 East 75th St., New York, in..........................178, 180, 184
Coolidge, Shepley, Bulfinch & Abbott, Lionel Hall, Harvard University, Cambridge, ex. pl...**99**
Coolidge & Shepley, S. K. Club, Harvard University, Cambridge, ex. pl...........361, 362
Cope & Stewardson, Entrance Gateway, Blair Hall, Princeton University, Princeton, ex. 328
Cram & Ferguson, Millhiser Memorial Gymnasium, Richmond College, Richmond, Va., ex. 335
Crane, C. Howard, Guild Theater, New York, ex. in. pl. (Kenneth Franzheim and Charles Hunter Bettis, Associated), Frontis., July 13-16, **1-4**

D

Daggett, R. P., & Co., Gymnasium, University of Indiana, Bloomington, Ind., ex. in. pl..336, **90**
Dahlstrom, Arthur, Small Cooperative Apartment House, Minneapolis, ex. pl...........146
Davis, Huntley Ward, Sobie Silk Shops and Darwins, Ltd., Montreal, ex..........106, 107
Day & Klauder, Holder Hall, Princeton University, Princeton, ex. pl............325, 332
1901 Hall, Princeton University, Princeton, ex. 329
Cuyler Hall, Princeton University, Princeton, ex...............................330, 331
Pyne Hall, Princeton University, Princeton, ex. 347
Franklin and Marshall College Dormitories, Lancaster, Pa., ex..........................348
Harter Hall, University of Delaware, ex...352
Sussex Hall (Women's Dormitory), University of Delaware, ex.................347, 348
John Rogers Hegeman Dormitory, Brown University, Providence, ex................349
Littlefield Dormitory, Brown University, Providence, ex.............................352
Stadium, University of Colorado, Boulder, Colo. 382
Baker Tower and North Baker Dormitory, Cornell University, Ithaca, ex.......350, 351
Frederick Watts Hall, Pennsylvania State College, ex.................................349
Franklin Field Stadium, University of Pennsylvania, Philadelphia...........379, 380, 382
Dean & Dean, Jefferson Schoolhouse, Sacramento, ex.....................................35
De Golyer, Robert S., Apartment Building, Evanston, Ill., ex. pl............................**50**
Dewitt & Lemmon, Four-apartment Building, Dallas, ex. pl...........................163, 164
Dixon, Stiles S., Fayetteville Country Club, Fayetteville, N. C., ex. in. pl..........27, 28
Doane, Ralph Harrington, Designs for Town Halls, Philippine Islands, ex...............295
Dodge, E. S. (see J. W. Ames)

E

Embury, Aymar, II., Schoolhouse, Southern Pines, N. C., ex. pl.......................51, 52

F

Forster, Frank J., House, J. W. Day, Douglaston, N. Y., ex. pl.......................225-230
Foss Designing Co., Cunningham Showroom, Los Angeles, ex.............................112
Fowler, Lawrence, Maryland War Memorial, Baltimore, ex. in. pl...............66-68, **17-19**
Franzheim, Kenneth (see C. Howard Crane)

G

Garden, Hugh, Entrance Hall, Garden Apartments, Chicago, in..........................182
Gilbert, Cass, Memorial to the First Division, Washington...................................**31**
United States Treasury Annex, Washington, ex. pl...............................**28, 29**
Gilchrist, Edmund B., House, Charles Forman, Winnetka, Ill., ex. in. pl........219-224, **65-67**
Goodwillie & Moran, War Memorial, Southampton, N. Y.......................11, 12, **5, 6**
Greco, Charles R., Temple Tifereth Israel, Cleveland, ex. in. pl..............258-260, **73-80**
Greene, Herbert M., Co., University of Texas, Austin, Tex., Scottish Rite Dormitory for Women, ex. pl.................................**96**
Grey, Elmer, Community Playhouse, Pasadena, ex. in. pl...................77-80, **20, 21**
Guilbert & Betelle, One-teacher Schools, State of Delaware, ex. pl......................36, **37**

H

Hahn, Frank E., Blum Store, Philadelphia, ex. 104
Bains' Luggage Shop, Philadelphia, ex.....105 (S. Brian Baylinson, Associated)
Hallberg, L. G., & Co., Apartment, Corner Hinman Ave. & Lee Street, Evanston, Ill., ex. pl...**54**
Hentz, Reid & Adler, Apartment, 696 Peachtree St., Atlanta, ex.................................123

- Apartment, 310 West Church St., Jacksonville, ex....123
- Hibbs, H. C., Common Room, Students' Memorial Building, Vanderbilt University, Nashville, in....339
- Hitchcock, Wilbur A., Apartment Building, Laramie, Wyo., ex pl....154
  - Whiting Schoolhouse, Laramie, Wyo., ex. in. pl....55, 56
- Hobart, Lewis P., Steinhart Aquarium, San Francisco, ex. in. pl....7, 8, **7, 8**
- Holabird & Roche, Nicollet Hotel, Minneapolis, ex. in. pl....287, 288, **81-84**
  - Stadium, University of Illinois, Urbana, Ill. 378, 379
  - Wesley Foundation, University of Illinois, Urbana, Ill., ex. in....339, 341-345
- Hollingsworth & Bragdon, Elizabeth Daily Journal, Elizabeth, N. J., ex. in. pl....**12, 13**
- Hood, Raymond M. (see John M. Howells)
- Hopkins, Alfred, Adirondack Trust Co., Saratoga Springs, N. Y., ex....71
  - City National Bank, Binghamton, N. Y., ex. in....73, 74
  - Savings Deposit Bank & Trust Co., Elyria, N. Y....69
  - Suffern National Bank, Suffern, N. Y., ex. in....72, 269
- Howells, John M., Tribune Tower, Chicago, ex. pl....Frontis., Oct. 186-190, **57-61** (Raymond M. Hood, Associated)
- Hutchins & French, High School Building, Kennebunk, Me., ex. pl....53, 54

K

- Kearfott, C. B., Five-house Group, Bristol, Tenn., ex....175
- Kepley, Frank T., Psi Upsilon House, University of Illinois, Urbana, Ill., ex....353
- Kilham, Hopkins & Greeley, Town Hall, Dover, Mass., ex. pl....293, 307, 308
  - Town Hall, Tewksbury, Mass., ex. in. pl. 303, 304

L

- Larson & Wells, Kappa Kappa Kappa House, Dartmouth College, Hanover, N. H., ex. in. pl....360, 371, 372
  - Memorial Field Stadium, Dartmouth College, Hanover, N. H....380, 381
  - Russell Sage Hall, Dartmouth College, Hanover, N. H., ex. pl....**98** (Office of John Russell Pope, Associated)
  - Sigma Nu House, Dartmouth College, Hanover, N. H., ex. in. pl....357, 359, 363, 364
  - Topliff Hall, Dartmouth College, Hanover, N. H., ex. pl....**97**
- Laurence, E. F., Women's Building and Gymnasium, University of Oregon, Eugene, Ore., ex....322
- Leland, J. D., & Co., Town Hall, Kennebunk, Me., ex. pl....309, 310
- Leland & Loring, Apartment, 32 River St., Boston, ex. pl....126
- Litchfield, Electus D., Design for First Baptist Church, Plainfield, N. J., ex. pl. (Pliny Rogers, Associated)....264
  - House, Seavey Battelle, Rye, N. Y., ex. in. pl. (Pliny Rogers, Associated)....**14-16**
- Little & Russell, Town House, Peterboro, N. H., ex. in. pl....311, 312
- Loring, Charles G., Noonan Schoolhouse, Winchester, Mass., ex. pl....40-42
  - Tolman Schoolhouse, Stoughton, Mass., ex. pl. 38
- Loud, Herbert R., Colonial House, Connecticut College for Women, New London, Conn., ex. pl....**103**

M

- Mann & MacNeille, Block of Two-family Houses in Brooklyn, ex. pl....156
  - Three-family House at Orange, N. J., ex. pl. 157
- Marston, Van Pelt & Maybury, G. L. Morris Building, Pasadena, ex. pl....**30**
- Maynicke & Franke, Rhinelander Apartments, Washington Square North, New York, ex. pl....**53**
- McKim, Mead & White, Library of Columbia University, New York, ex....323
  - Apartment, No. 277 Park Ave., New York, ex. pl....**9-11**
- Merrill, Daniel D., Brooklyn Heights Apartments, Brooklyn, ex. pl....**33, 34**
- Miller & Reeves, Latham Apartments, Columbus, Ohio, ex. in. pl....179, 180, 183, **45, 46**
- Morris, Benjamin Wistar, Entrance Detail, 1879 Hall, Princeton University, Princeton 329

N

- Nimmons, George C., & Co., Olympia Fields Country Club, Olympia Fields, Ill., ex. in. pl....278-280, **85-88**

O

- O'Connor, James W., Gymnasium, Manhattan College, Riverdale-on-Hudson, N. Y., ex. pl. 334, **93**
- Olsen & Urbain, Arlington Apartments, Chicago, ex. pl....**55**

P

- Palmer, Edward L., Jr., Guilford Manor Apartments, Baltimore, ex. pl....153, **41, 42**
- Park & Morgan, Faculty Houses for Princeton University, Princeton, ex. in. pl.....165, 166, 181
- Parker, Thomas & Rice, Apartment, Corner Berkeley & Marlborough Sts., Boston, ex. pl....**37, 38**
  - Carlton Apartments, Baltimore, ex....121
- Parmelee, E. D., Apartment House at Larchmont, N. Y., ex. pl....169, 170
- Peabody, Wilson & Brown, Town Hall, Huntington, N. Y., ex. in. pl....301, 302
- Peck, Laurence F., Municipal Building, Plainfield, N. J., ex. in. pl. (William Lawrence Bottomley, Associated)....296, 299, 300
- Pelham, George F., Jr., Pelbrook Hall, Pelham, N. Y., ex....150
  - Peldean Court, Pelham, N. Y., ex. pl..148, 150
  - Hudson View Apartments, New York, ex. in....147-149, 151, 152
- Platt, Charles A. (see James M. White)
- Pope, John Russell, New York State Roosevelt Memorial, ex. pl....9, 10
  - Russell Sage Hall, Dartmouth College, Hanover, N. H., ex. pl. (Larson & Wells, Associated) **98**
  - Study for Gymnasium, Yale University, ex. Frontis., December
  - Town Hall, Plattsburg, N. Y., ex....290
- Proctor, Benjamin, Jr. (see Charles M. Baker)
- Putnam, K. S. (see J. W. Ames)

R

- Rebori, Wentworth & Dewey, A. N. Rebori Coöperative Apartments, Chicago, ex. pl..**52**
- Riddle, H. H., "Efficiency Dormitory" of Chicago Theological Seminary, ex. in. pl....384
- Riley, Frank, Lakewood Schoolhouse, Madison, Wis., ex....34
- Ritchie, Parsons & Taylor, Grade Schoolhouse, Mansfield, Mass., ex....39
  - Mystic Schoolhouse, Winchester, Mass., ex..39
- Rogers, James Gamble, Harkness Memorial Quadrangle, Yale University, New Haven, Conn., ex....324
- Rogers, Pliny (see Electus D. Litchfield)
- Ross & MacDonald, Medical Arts Building, Montreal, ex. pl....**32**
- Royer, J. W., Sigma Pi House, University of Illinois, Urbana, Ill., ex....358

S

- Sandblom, Charles A., Apartment Building, Long Island City, N. Y., ex. pl....155
- Schmidt, Mott B., Apartment, 53 East 66th St., New York, ex. pl....**47, 48**
- Schultze & Weaver, Scarsdale Apartments, Scarsdale, N. Y., ex. pl....130
  - Store and Apartment Buildings, Scarsdale, N. Y., ex. pl....129
- Shaw, Howard Van Doren, House, John P. Wilson, Chicago, ex. in. pl....81, 82, **22-24**
  - Phi Delta Theta House, University of Illinois, Urbana, Ill., ex. pl....365, 366
- Shepley, Rutan & Coolidge, Common Room and Dining Room, Smith Hall, Harvard Freshman Dormitories, Cambridge, in.....337, 340
  - Common Room and Dining Room, Standish Hall, Harvard Freshman Dormitories, Cambridge, in....338, 340
  - Dining Room, Gore Hall, Harvard Freshman Dormitories, Cambridge, in....339
- Smith, Hinchman & Grylls, Yost Field House, University of Michigan, Ann Arbor, Mich., ex. 335
- Smithey & Tardy, Country Club, Roanoke, ex. in. pl....75, 76
- Smythe, Richard Haviland, Shop, John Ward, 42nd St., New York, ex....112
- Somes, Dana, Shop and Apartment Building, Boston, ex. pl....**49**
- Sommerfeld & Steckler, "Custer Arms," Bronxville, N. Y., ex. pl....145
- Stout, Penrose, Merestone Terrace, Bronxville, N. Y., ex....131, 134, 135
- Stratton, Edward B., Apartment, 97 Mount Vernon St., Boston, ex. pl....**39, 40**
- Sturgis, R. Clipston, D. U. Club, Harvard University, Cambridge, ex. in. pl....373, 374
  - Robbins Memorial Town Hall, Arlington, Mass., ex. in. pl....297, 298
- Summo, D. A., House, Francis Rogers, New Rochelle, N. Y., ex. pl....235, 236
  - House, Grant Thorn, New Rochelle, N. Y., ex. pl....231-234

T

- Treanor & Fatio, Beekman Terrace Apartments, New York, ex. pl. (J. E. R. Carpenter, Consulting Architect), Frontis., September **56**
- Turner, Philip J., Two-house group in Montreal, ex....175
- Tuttle, Bloodgood, Two-house Group for J. J. Boggis, Cleveland, O., ex. in. pl....167, 168
- Tyson & Foster, Apartment Building, Ashland, Ky., ex. pl....159

U

- Ullrich, Edgar V., Casa de Manana, La Jolla, Cal., ex. in. pl....209-212, **62-64**
- Upjohn, Hobart B., Gymnasium, North Carolina State College of Agriculture, Raleigh, N. C., ex. pl....334, **89**
  - Prize Design, Competition Drawing, First Baptist Church, Plainfield, N. J., ex. pl. 262, 263

V

- Vallance, Hugh (see David R. Brown)
- Varney, Ralph W., Alpha Delta Phi House, University of Illinois, Urbana, Ill., ex. pl. 356, 367, 368

W

- Warren & Wetmore, Iroquois Club, Harvard University, Cambridge, ex. pl....369, 370
- Weiss & Dreyfous, Arthur L. Kaufman Store, New Orleans, ex....99
- Welsh, Lewis E., Town Hall, Greenfield, N. Y., ex....291
- Wendehack, Clifford C., House, Miss Edith Bogue, Montclair, N. J., ex. in. pl....237, 238
  - House, Frank Nobbe, St. Albans, N. Y., ex. in. pl....239, 240
- Wheelwright, Edmund W., Meeting Room, Lampoon Building, Harvard University, Cambridge, in....338
- White, James M., Men's Gymnasium, University of Illinois, Urbana, Ill., ex. pl. (Charles A. Platt, Associated)....333, 334, **91**
  - West Residence Hall, University of Illinois, Urbana, Ill., ex. pl. (Charles A. Platt, Associated) **100**
- Wight & Wight, Kansas City Life Insurance Co. Building, ex. in. pl....191, 192, **68-72**
- Wilson, Berryman & Kennedy, Dormitory, Columbia Theological Seminary, Columbia, S. C., ex....**94**
- Worthen, Kenneth P., House, F W.. Butler, St. Paul, ex. pl....245, 246
  - House, Theodore Christienson, St. Paul, ex. in. pl....243, 244
  - House, Paul Greig, St. Paul, ex. in. pl..241, 242
- Wright, William Campbell, House, W. C. McDonald, Winnetka, Ill., ex. pl....247, 248

Y

- York & Sawyer, Dining Hall, Law School, University of Michigan, Ann Arbor, Mich., in. 338

Z

- Zantzinger, Borie & Medary, Facade Detail, One of Southwest Group Dormitories, Princeton University, Princeton, ex....331
  - Foulke Dormitory, Princeton University, Princeton, ex....332
  - Group of Dormitories, Princeton University, Princeton, ex. pl....**101**
  - Henry Dormitory, Princeton University, Princeton, ex....330

BOOK DEPARTMENT

"Vingt Lithographies du Vieux Paris"

Reviewed by HOWARD MOÏSE

IT was only a few years ago that Mr. Samuel Chamberlain's drawings first began to be known in the architectural world. They achieved at once a popular success, which has made him a frequent contributor to the architectural press, and they have always been among the pleasant features of any magazine in which they have appeared. In the earlier drawings the appeal lay principally in a certain directness and simplicity of handling which was an inspiration to the younger draftsmen. But their popularity was by no means limited to the student group; marked by an admirable economy of method, by a crispness and sureness of line, and by excellent delineation of architectural motifs, they were unmistakably the sketches of an architect of trained appreciation.

Books Reviewed

Vingt Lithographies du Vieux Paris.
House & Garden's Second Book of Houses.
A Monograph of the William K. Vanderbilt House.
Masterpieces of Spanish Architecture.
Architectural Construction: Vol. I.
English Furniture at a Glance.
Small Family Houses.
Good and Bad Manners in Architecture.

Books Received

Meeting House of the First Baptist Church, Providence. By N. M. Isham.
Woodcut Annual for 1925. By Alfred Fowler, Kansas City.
A Manual of Style. $3. University of Chicago Press.

Unfortunately, however, many of these early drawings were marred and cheapened by undignified tricks of draftsmanship, and especially in the handling of the skies, and not infrequently one felt that Mr. Chamberlain, having found a happy formula, was in danger of letting the formula run away with him. The draftsmanship often eclipsed the subject, and in spite of the excellent drawing of architectural form one felt no reality behind the black ink and the white paper. A successful formula is a dangerous thing, and I, for one, had little hope that Mr. Chamberlain would be able to rise above it. It is a pleasure, therefore, to record that he has risen above it, and that in the portfolio of lithographs which have recently been imprinted in Paris he has produced work of a very high order. Mr. Chamberlain long since abandoned most of the bag of tricks which detracted from his early drawings, and in the last two years his work has displayed a steady and consistent growth in power and dignity. The drawings in this portfolio, however, mark a forward step far in advance of anything he has achieved hitherto. They are drawings of great beauty and distinction, drawings which one not only enjoys looking at, but which one would like to really possess.

I will not claim for them perfection nor discourage Mr. Chamberlain from further endeavor by referring to them as the culminating achievement of his career. I am sure, in fact, that he is destined to go even farther in the graphic arts than he has gone in these last drawings. In a few of them one still sees the faint shadows of early failings. One feels, for instance, while greatly admiring the crispness of line and the sparkling beauty of contrasting black and white, that some of the plates show a lack of half-tones and aërial perspective, the distances and middle distances failing to take their proper places in the picture. And, beautiful as the drawings are, one still feels in some of them, as in the artist's earlier work, a certain lack of the spiritual. Exquisite in craftsmanship, they touch the intellect rather than the heart. The subjects are drawn with a punch but seldom with a caress, and though the outer semblance is beautifully portrayed, the inner spirit—the *mood* of the place — seems somehow to be lacking or else feebly expressed.

What is this spiritual quality in a drawing that recreates in the observer the living spirit of a place and time and stirs his heart with poignant memories? Is the ability to achieve it something an artist can acquire, or must it simply happen, unaided and unsought? These are questions I hardly feel qualified to answer, but I suspect that it comes unaided and unsought,—that it must have been *felt* by the artist rather than striven for. The spiritual content of a drawing therefore is in direct proportion to the spirituality of the artist. To reproduce the "atmosphere"—the mood—of a place, he must have felt keenly that mood. He must have loved and suffered and bought drinks in the shadow of the buildings he sketches if he would have his drawings instinct with the life of them. Possibly Mr. Chamberlain has not sufficiently suffered in Paris. He has perhaps lived in too comfortable a hotel, and our hope for his future is that he may constantly feel more deeply the Paris which he presents with such brilliance in these studies.

These critical observations are merely made in passing. The shortcomings I have mentioned are insignificant in comparison with the great charm of the majority of the plates. The collection as a whole is a delightful thing. It is, I believe, Mr. Chamberlain's first attempt at lithography, yet he is quite at home in it.

VINGT LITHOGRAPHIES DU VIEUX PARIS PAR SAMUEL CHAMBERLAIN. Printed by hand in Paris on handmade Arches paper. Lithographs 13 x 20 inches in linen faced portfolio. Price $75. William Helburn, Inc., New York.

HOUSE & GARDEN'S

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A Country House designed by Frank J. Forster
Illustration from "The Second Book of Houses"

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SPANISH FARM HOUSES AND MINOR PUBLIC BUILDINGS. **Photographs and Drawings by Winsor Soule. 98 pp., entirely illustrations. 8 x 11 ins. Price $10 net. Architectural Book Publishing Company, New York.**

IN his introduction to this useful work on Spanish architecture, Ralph Adams Cram points out that Spain —the real Spain—is an almost unknown country. "It is true that hurried tourists dart into Seville on their little trips between steamers, and touch perhaps at Granada and Cordova on their way back to Gibraltar. Madrid also is not unknown, though why, except for the Prado, remains a mystery. Now and then strayed revelers from San Sebastian venture across the Pyrenees, even to Bilbao, and at the other end of the mountain wall commercial agents come down to Barcelona —and return. The great Spain of the old kingdoms of Castile and Leon, of Aragon and Andalusia, the real Spain that hides itself away from the cities and avoids the railways and the motor roads, this is left to itself, and it is well that it is so.

"Madrid, Barcelona, Bilboa are not Spain; they are only varying degrees of cosmopolitanism and the dead leveling of industrialism. Seville is indeed real, and Toledo, Segovia, Burgos, Salamanca, while there is a heart of Barcelona that has not wholly surrendered to coal and iron and their derivatives, capitalism and communism; but it is on the wide, windy plains of the great plateau, in the amber and violet mountains of its borders and spurs, and in the rich lowlands of the Mediterranean shore that the real Spain of San Fernando and the Catholic Kings and Don Quixote still exists, and happily may be found by the venturesome and the uncircular-trip-perized.

"Of course it is unfamiliarity that has bred the modern contempt for Spain, the strange illusion of its degeneracy and backwardness. It is both these things, if you measure it by the standards of the industrial magnate and the commercial traveler and the efficiency expert, but a people must first be judged by their own established standards, and those of the Spanish people, as a race, are otherwise. It is arguable that they have chosen a better way than others of their generation; in any case, to estimate them and their civilization and their ideals it is necessary to get outside all preconceived ideas not only as to our own civilization, but as to theirs as well, for never has a people been more misrepresented by historians and travelers and essayists. Practically all one hears of Spain is wrong, both as to the things that are praised and those that are blamed. It is the only country left on earth that, to the perceptive traveler, is new.

"Now the old Spain of evangelical religious faith, of aristocratic democracy, of austerity and courtesy and grave self-respect, the Spain of arid little farms, parched vineyards and gaunt mountain pastures; of tropical gardens and cloistered patios, of vast, ruined castles and white farmhouses and friendly, immaculate inns; of shepherds and donkeys and *caballeros* and beggars, is the Spain that Mr. Soule has found, and his pictures are glimpses of this interior Spain. You will not find these subjects in the photograph shops or in the pages of the geographical magazines, but you will find them in Spain if you once leave the tourist track. Not that Mr. Soule has disdained the major architecture of the larger towns; he gives his examples of the

Baroque (spontaneous for once) and the fantastic Plateresque that are so characteristically Spanish, but chiefly he pursues the vernacular architecture of farms and inns and the narrow streets of little villages, that is not really architecture at all from an academic point of view, but just the straightforward, instinctive building of grave and kindly men behind whom lies the creative tradition of two thousand years.

"Spanish architecture is incomparable. Moorish, Romanesque, Gothic, Plateresque, Rococo, and whatever be its source or genre, are transformed by Spanish temperament into something quite racial and unique; but side by side grows a quite different thing, and that is the modest building of the poor farmer and the undistinguished denizen of the town. Here is the art of building reduced to its simplest and plainest forms.

"Consider the simplicity of the materials and the forms. Rough rubble, either left gray and silvery or washed a thousand times with white, yellow, siena or rose-red lime; brown, natural wood, and rough tiles of every possible shade, from raw umber and dull ochre, through burnt siena to murrey and the dull purple of winlees. There is little brick and less cut stone, while ornament is most sparingly used; a roughly carved capital here and there, a door architrave, a coat of arms; there is little more, and the effect comes from instinctively good proportions, a perfect designing and placing of doors and windows, and a picturesqueness of composition that is so good it could not be premeditated. The Spaniard understands the wall and the roof as does no one else; he can build up his flat wall of rubble, cover it with a toned whitewash, pierce it with a door and five windows, add a balcony and two *rejas* of perfect ironwork, crown the whole with a sweeping roof of tawny tiles, plant two cypresses and an almond tree near by, and produce a composition that is the despair of the trained and cultured architect.

"No matter where you go you find this sort of thing at every turn, whether in the dim *calles* of Seville, the gray alleys of Toledo, the ochre and umber streets of Segovia, or in the tropical towns of Andalusia or the bleak barrens of Aragon and Castile. Nor does it matter what century gave it birth; it is all good and of a piece, down through the seventeenth and eighteenth centuries, even into the nineteenth. It is only the last 30 years that have seen the death of the old tradition and the coming in of the morbid affectations of architects and speculators, and the blasting horror of the 'Barcelona style,' with its culmination in the abortive Church of the Sagrada Famiglia."

ITALIC HUT URNS AND HUT URN CEMETERIES; A Study in the Early Iron Age of Latium and Etruria. By Walter R. Bryan. Price $2.50. The American Academy in Rome, 101 Park Avenue, New York.

THE appearance of Volume IV of the Papers and Monographs of the American Academy adds one more to the studies of antiquity which the Academy is sponsoring. Few details of what is still left of the ancient world throw more light upon its civilization and its relation to the people of the period than do its burial customs, and study of these customs as they prevailed in Italy has a high value for students of ethnology and for anyone who values the culture of the antique world.

With the critical scholarship and careful research with which all these studies are prepared, Mr. Bryan deals with the hut urns and the cemeteries, chiefly in southern Etruria and northern Latium, where these incinerary urns are found,—urns in the forms of huts or houses and made of *impasto Italico* or argillaceous earth baked at an open fire, the urns varying from 7 to 22 inches in diameter and being as a rule about 10 inches in height. They marked, apparently, the beginning of a long tradition, and their use was followed by that of more elaborate urns of terra cotta, adorned with painted figures, or by urns of bronze, silver, *bucchero* or stone. The illustrations, of which there are many, add to the interest of this archæological study.

MASTERS OF ARCHITECTURE; John Francis Bentley. By W. W. Scott-Moncrieff. Text with 34 illustrations, 7½ x 10 ins., from photographs by F. R. Yerbury. Price $2.50. Charles Scribner's Sons, New York.

IN issuing the monographs which comprise this series the editors wisely intersperse among those dealing with architects who lived centuries ago occasional volumes upon architects or architectural firms of the present or of comparatively recent times. Thus among the great of former centuries, such as Inigo Jones, Hawksmoor, Chambers, Vanbrugh and Fischer Von Erlach, the series already includes volumes on McKim, Mead & White and Bentley.

John Francis Bentley will live in history chiefly as the architect of Westminster Cathedral, built upon a site purchased by Cardinal Manning, and the first great cathedral built by English Catholics since the Reformation; a building structurally complete, but as yet lacking in most of the mosaics and other accessories which one day will render it something other than the austere though beautiful place of today. Built after a careful study of certain old churches in Venice and those at Ravenna, Bentley developed his plan for a great church exteriorally of brick and stone with a vast and lofty interior, the nave capped by three low saucer domes, with a fourth above the choir and high altar, the singers' choir being behind the altar.

The volume owes much of its attractiveness to the illustrations,—many of the cathedral and quite a number of other churches by Bentley, notably that beautiful building, the Church of the Holy Rood at Watford.

GREEK LIFE AND THOUGHT; A Portrayal of Greek Civilization. By La Rue Van Hook. 329 pages, 5¼ x 8½ ins. Price $2.50. Columbia University Press, New York.

GROWING interest in the history and culture of Greece is causing not only the study of Greek but also the publication of a number of works which deal with different aspects of classical antiquity. The mutilated remains of Greek art and Greek architecture which have come down to us are but reminders of the many glories of ancient Greece,—her literature, philosophy, drama, and everything else which contributes to civilization and culture.

This excellent work by the Professor of Greek and Latin in Barnard College, while it surveys the results of effort in every form, seems to dwell with particular emphasis upon whatever concerns architecture and the arts most closely allied to it. It contains a critical study of the Greek theater and drama, and a valuable bibliography.

LOUIS XVI FURNITURE. By Seymour de Ricci. 272 pp., 9 x 11½ ins. Price $10. Brentano's, 1 West 47th Street, New York.

FRENCH styles of interior decoration and furniture owe their unpopularity, or rather their want of popularity, in America largely to the mistakes of their friends. Many have been the instances where Americans, long resident in Europe perhaps, have desired to reproduce at home something of the air of beauty and refined richness which hangs like faint aroma around about many of the older houses in France, but the result has generally been disappointing, and at times it has been disastrous. Choice has only too often been made of the florid and extravagantly sumptuous of the French types, sometimes attempted by architects or decorators insufficiently equipped, and in the successful use of such styles much depends upon securing the proper setting or environment;—so for one reason or another the use of French styles in America has been disappointing, and the popularity of the type is not advanced when there are pointed out as examples of French interiors overornate and superlatively gorgeous apartments (usually in hotels) such as ballrooms or restaurants, which most people feel inclined to accept as representative. Only lately has there come a movement which seems destined to popularize French styles by emphasizing the beauty of the Directoire and the simpler forms of the Empire, both of which are likely to become popular.

In this volume there is presented the case for the style which goes by the name of Louis XVI. Coming as it did as a reaction from the extreme architectural and decorative forms associated with the names of the preceding monarchs, the type abounds in opportunities for securing effects which are comparatively simple and quiet without ceasing to be rich and a trifle ceremonious, —*comparatively* simple, to be sure, for the French interior differs in its very essence or nature from most of what is popular in America, and its use will scarcely be attempted by anyone not prepared to live up to the demands which it will inevitably make. In these pages are contained illustrations and descriptions of many interiors of the more simple order, their walls covered with the paneling which the French know so well how to use, the panels filled in with fabrics of different sorts or else with plain surfaces, all this supplying a richly colored background to set forth furniture which more perhaps than furniture of any other type depends for effect upon its setting. The volume, well written and lavishly illustrating well chosen examples of interior architecture and the furniture which goes with it, would furnish a valuable addition to the library of any architect.

EVERYMAN'S HOUSE. By Caroline Bartlett Crane. 226 pages, 5 x 7½ ins. Price $2 net. Doubleday, Page & Co., New York.

SO much excellent matter is being published upon the subjects of building, furnishing, decoration and other more or less closely related topics that it is difficult to understand just why this work was either written or printed. Even a careful examination shows but little which by any stretch of the imagination could be regarded as either constructive or helpful, and the illustrations without exception show what it would be well to avoid having. Little has been made of an opportunity.

PROVINCIAL HOUSES IN SPAIN

By Arthur Byne & Mildred Stapley

ARCHITECTS value Spanish types of domestic architecture because of their simplicity of design and plan and also because they are easily developed in materials inexpensive and easily had. Spain offers a choice of several kinds of residence architecture, types sufficiently different from one another to afford considerable range of selection, yet all possessing the same strength and virility, the excellent lines, the same graceful but unaffected grouping, and the discriminating use of detail which renders distinguished so many Spanish domestic buildings.

Houses in various parts of the Spanish peninsula, particularly the buildings of medium size in rural districts or provincial towns, offer excellent precedent for use in different parts of America where climate conditions are about what prevail in the provinces of Spain.

IN this volume two well known writers on Spanish architecture and decoration review the various forms which are given to the small or medium sized house in Spain. To render the work as helpful as possible to architects, the authors have included many plans and drawings of different kinds, details of such exterior parts of buildings as friezes, cornices, windows, timber overhangs, soffits and balconies, or of such interior parts of the structure as ceilings, fireplaces, doors and stairways. Part of the work deals with the tiles, pottery, ironwork, plaster in relief and the other forms of craftsmanship which contribute so much to the excellence of domestic architecture in Spain. It is a work likely to be invaluable to the designer.

The book contains text and 190 plates 12½x16 inches, and is bound in cloth. Price $25, postpaid.

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CONTENTS *for* JULY 1925

PLATE ILLUSTRATIONS Architect Plate

Guild Theater, New York
C. Howard Crane, Kenneth Franzheim, and .... Charles Hunter Bettis 1-4

War Memorial, Southampton, N. Y.
.... Goodwillie & Moran 5, 6

Steinhart Aquarium, San Francisco
.... Lewis P. Hobart, Architect 7, 8

No. 277 Park Avenue, New York
.... McKim, Mead & White 9-11

Daily Journal Building, Elizabeth, N. J.
.... Hollingsworth & Bragdon 12, 13

House of Seavey Battelle, Esq., Rye, N. Y.
...... Electus D. Litchfield & Pliny Rogers 14-16

LETTERPRESS Author Page

Cover Design: Window at "Woodlands" (1788)
.... From a Drawing by Louis C. Rosenberg

The Editor's Forum 55

The Guild Theater, New York
From a Drawing by Charles Hunter Bettis.. Frontispiece

The Problem of the Pediment
.... Matlack Price 1

Steinhart Aquarium, San Francisco
.... Lewis P. Hobart, Architect 7

New York State Roosevelt Memorial Competition 9

War Memorial, Southampton, N. Y.
.... Goodwillie & Moran, Architects 11

The Guild Theater, New York
C. Howard Crane, Kenneth Franzheim and .... Charles Hunter Bettis, Architects 13

Planting in Relation to Architecture
.... Elsa Rehmann 17

LETTERPRESS (Concluded) Author Page

Smaller Civil Architecture of England
VI. Market Hall, Taunton, Somerset
Roger Wearne Ramsdell and Harold Donaldson Eberlein 21

Fayetteville Country Club, Fayetteville, N. C.
.... Stiles S. Dixon, Architect 27

Important Principles of Structural Economics
.... James M. Green, Jr. 30

The Small Schoolhouse
.... Charles C. Loring 33

Noonan Schoolhouse, Winchester, Mass.
.... Charles G. Loring, Architect 41

Ward 7 Schoolhouse, Melrose, Mass.
.... Charles M. Baker, Architect 43

John D. Hardy Schoolhouse, Wellesley, Mass.
.... Charles M. Baker, Architect 45

Seaver Street Schoolhouse, Wellesley, Mass.
Benjamin Proctor, Jr. and Charles M. Baker .... Associated Architects 47

Sheldon L. Brown Schoolhouse, Wellesley, Mass.
.... Brainerd & Leeds, Architects 49

Schoolhouse at Southern Pines, N. C.
.... Aymar Embury II, Architect 51

High School Building, Kennebunk, Me.
.... Hutchins & French, Architects 53

Whiting Schoolhouse, Laramie, Wyo.
.... Wilbur A. Hitchcock, Architect 55

Salon in Hotel Gouthiere, Paris
.... C. Hamilton Preston 57

Interiors in Early Italian Renaissance Style
.... Alfred Lowden 63

PARKER MORSE HOOPER, Editor

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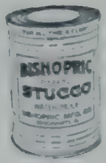

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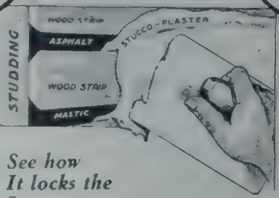

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THE EDITOR'S FORUM

ARCHITECTS ORGANIZE

A NEW factor has recently entered the architectural field in Washington. It is known as "The Allied Architects of Washington, D. C., Incorporated," and it includes the majority of the established Washington architects, all of whom are members of the American Institute of Architects. The special feature of the corporate service is consultation and collaboration and compilation of schemes among men of the highest caliber and widest experience. The arrangement makes it possible for younger men of marked ability in design to obtain for their ideas full consideration, together with the safeguard which comes from the supervision or support of men long in practice.

The organizers announce that it is not the intention of the corporation to enter the field of ordinary private practice, and that it will concern itself only with larger public or semi-public undertakings. The first of these is the new House Office Building of the House of Representatives, for the preliminary plans of which a contract has recently been signed with the Architect of the Capitol.

The Washington organization is modeled closely on that of the Allied Architects Association of Los Angeles, which now has a membership of over 70, and handles practicallly all of the public work of that city. The detailed handling of its projects has gained great popularity for the Los Angeles group, and has aroused much interest in the architectural profession generally. The President of the association, Edwin Bergstrom, came to Washington recently to advise the directors of the new corporation.

INDUSTRIAL HOUSING

PUBLICATION has been made of the address delivered by Andrew J. Thomas of New York before the recent conference at Colorado Springs of the National Association of Building Owners and Managers, in which he presented an encouraging outlook for the improvement in homes intended for industrial workers. There has also been issued, in booklet form, a reprint of several articles contributed by Mr. Thomas to the New York *Evening World* entitled "Garden Apartments to Replace Slums," the booklet being replete with plans and diagrams showing the economical arrangement of buildings on city blocks which at the same time would make possible interior gardens and other open areas.

Mr. Thomas presents figures to prove that while giving to the owning company a fair return on the necessarily large investment, such living quarters could be had by the tenant at a monthly cost of $10 per room, all rooms having air and sunshine, and all apartments being supplied with heat and baths.

CHARLES F. McKIM LETTERS

A VOLUME of the letters of the late Charles Follen McKim is being prepared for publication, under the editorial supervision of Charles Moore, Chairman of the National Commission of Fine Arts. Those having letters from Mr. McKim are earnestly requested to allow them to be copied, the originals to be returned promptly. Such letters may be sent to Mr. McKim's daughter, Mrs. William J. Maloney, 145 E. Fifty-second St., New York.

AWARD FOR CARNEGIE STUDENT

ONE more honor for the Department of Architecture of Carnegie Institute of Technology is indicated in the announcement that a traveling scholarship of $500 to the Fontainebleau School of Fine Arts has been awarded by the Beaux Arts Institute of Design to Luther S. Lashmit, a graduate and instructor of the Pittsburgh institution.

The scholarship, it is announced, is for three months' study this summer at Fontainebleau. The award was based on work submitted in the last Class A judgment of the year, Lashmit, with Wayne F. Koppes, a senior at Carnegie, and George N. Pauly, a graduate of Carnegie, winning the first medals.

THE ROOSEVELT MEMORIAL

ACCORDING to an announcement made recently, John Russell Pope has been selected as architect of the Theodore Roosevelt Memorial in Manhattan Square, by the Trustees of the New York State Roosevelt Memorial Association. Mr. Pope was chosen in a competition in which the plans of eight firms of architects were considered.

The jury that passed on the designs included Henry Fairfield Osborn, Chairman of the Board of Trustees; Peter D. Kiernan, Albany; Mrs. Douglas R. Robinson, New York; Chauncey J. Hamlin, Buffalo; Charles W. Flint, Chancellor of Syracuse University; Mrs. William H. Good, Brooklyn, and William Richard Kendall and Milton B. Medary, Jr.

PRIX DE ROME WINNERS

IT has recently been announced that Michael Joseph Mueller of the Yale School of Fine Arts, and Walter Hancock of Chestnut Hill, Pa., are the winners, respectively, of the first prizes in painting and sculpture awarded for this year by the American Academy in Rome. Each of these prizes carries the fellowship known as the Prix de Rome, entitling the holder to three years' residence and study at the Academy in Rome, and a stipend of $1,250.

The fellowship in sculpture is provided by the Jacob H. Lazarus Fund of the Metropolitan Museum of Art. The fellowship in sculpture is donated by Samuel L. Parrish, of Southampton, N. Y.

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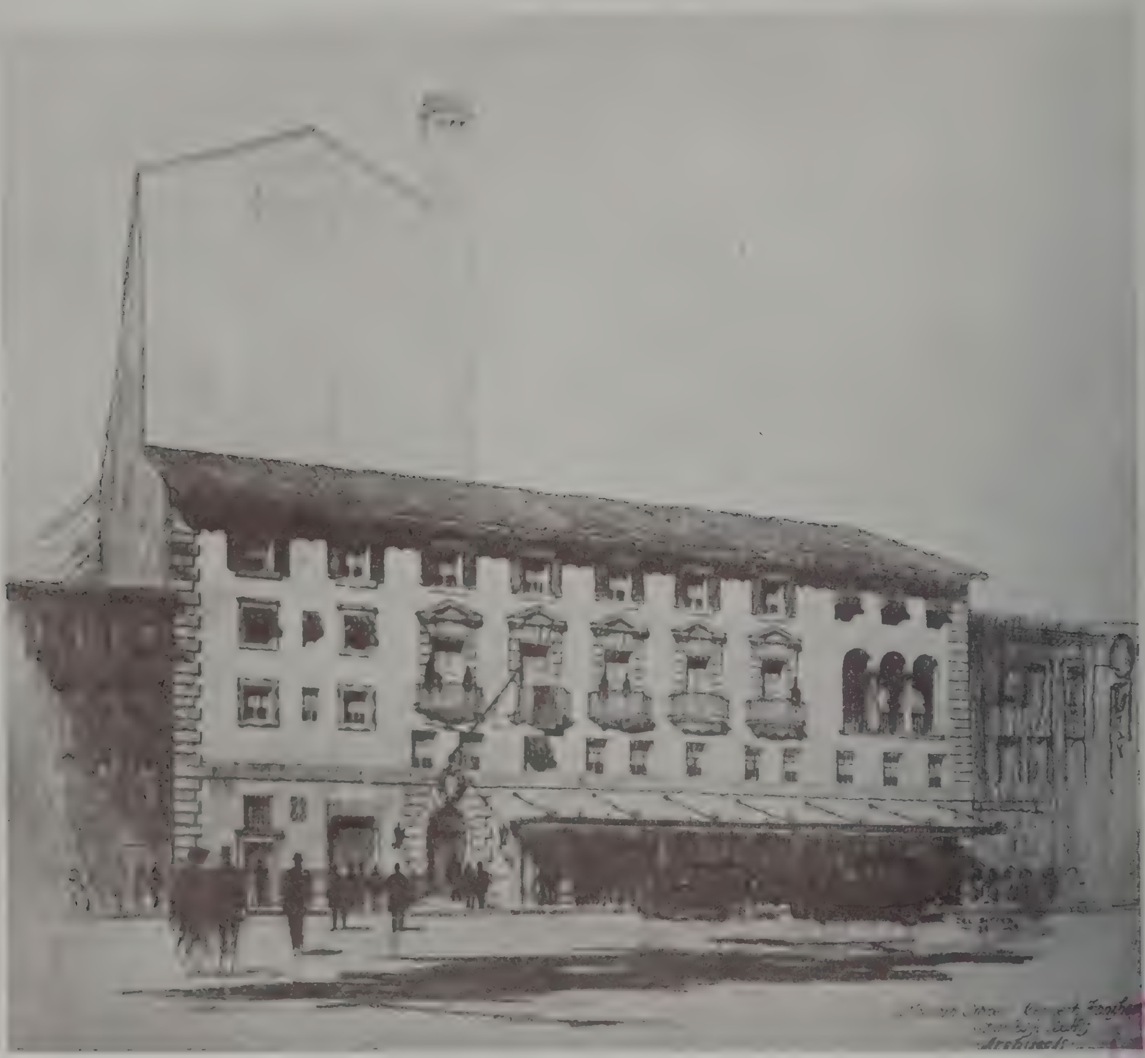

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C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS

From a charcoal drawing by Charles Hunter Bettis

The
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VOLUME XLIII JULY 1925 NUMBER 1

The Problem of the Pediment

By MATLACK PRICE

IT is doubtful if any architect, certainly any architect who has had occasion to design one, would deny that the pediment is a problem, and none the less so by reason of the amount of effort expended upon it by the ancient Greeks, and by many others who have attempted it in later years.

California of Today
Central Figure of Second Pediment, California Capitol, Sacramento

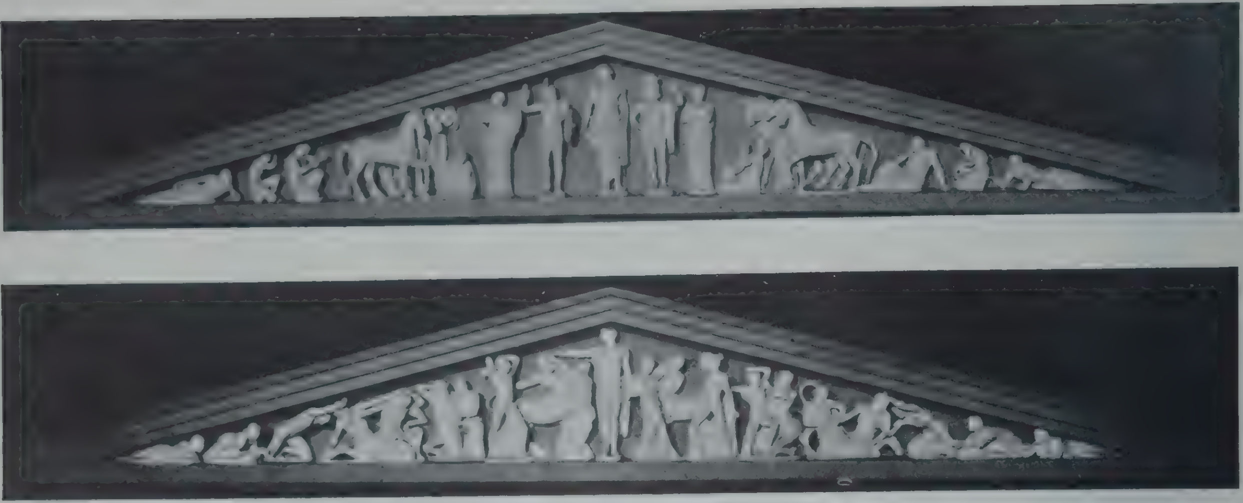
The term "pediment" is here used inclusively, and is intended to mean, as well, the tympanum, that important triangular space designed to be filled, well or indifferently, by the sculptor. In the actual framing of that space there is plenty for the architect to do, what with split fillets and the management of the mouldings where the oblique line takes off from the horizontal,—plenty to do even if he stops short of doing too much, which he sometimes does. It is a mistake, certainly, to allow distinctly architectural elements, such as dentils or modillions, to infringe upon the space, restricted enough at best, in which the sculptor is to work. Many otherwise very good modern pediments have been complicated, to their distinct detriment, by this architectural encroachment, and the sculptor has been correspondingly handicapped.

Our premise here, at the risk of seeming obvious, is that the pediment is a very real problem, and one which too often fails to receive an adequate solution because two minds,—two men, not one,—the architect and the sculptor, are needed to create it. And, after the architect has provided a fair triangular space, the lion's share of the problem rests squarely on the shoulders of the sculptor, provided he is allowed a reasonable chance to exercise the creative skill of which he is capable without interference.

Professor Gardner, of Oxford, says ". . . the composition of a pediment is as exactly regulated as that of a sonnet or a Spencerian stanza; the artist has liberty only in certain directions, and must not violate the laws of rhythm." This is very true, even allowing that it demands some general agreement as to just what is meant by rhythm, and just what the rhythm of a pediment composition should be. The problem of the pediment has, from its nature, been alternately a favorite battlefield and playground for professors of classical archæology, virtually any one of whom would be hopelessly incapable of designing a pediment, no matter how many thousand words of good advice he might be able to write regarding it.

In the matter of pediments we live, perhaps, more oppressively in the shadow of the achievements of antiquity than we do in that of any other particular of architectural design. There has been a bit too much rhapsodizing about the qualities of certain ancient pediments (notably that of the Parthenon) and not enough thought about the pediments we have tried to make in modern times, or may have to make tomorrow. The Parthenon pediment may not have been quite so good as some classical architectural historians think it, and some modern pediments may not be quite so bad as they consider them. On this point it is distinctly refreshing to find Gardner admitting that all ancient Greek sculptors were not divinely inspired in the design of pediments, even though he extends no laurels to the moderns: "If it be thought strange that so simple a condition as the triangular form of a pediment should prove so trying to the Greek sculptor, it should be observed that modern sculptors have also tried their hands at pedimental compositions, and with very moderate success. It would not be easy to find a pleasing modern pediment. Of course the modern sculptor works at a disadvantage, as the resources on which the Greek relied are not open to him; he cannot vary the sizes of his figures in accordance with their dignity, or fill the corners with reclining river-gods. But even apart from these disadvantages, the difficulties inherent in the form are very great." Such has been the general experience.

In the last sentence of this paragraph, incidentally, there is a distinct contradiction to the opening state-

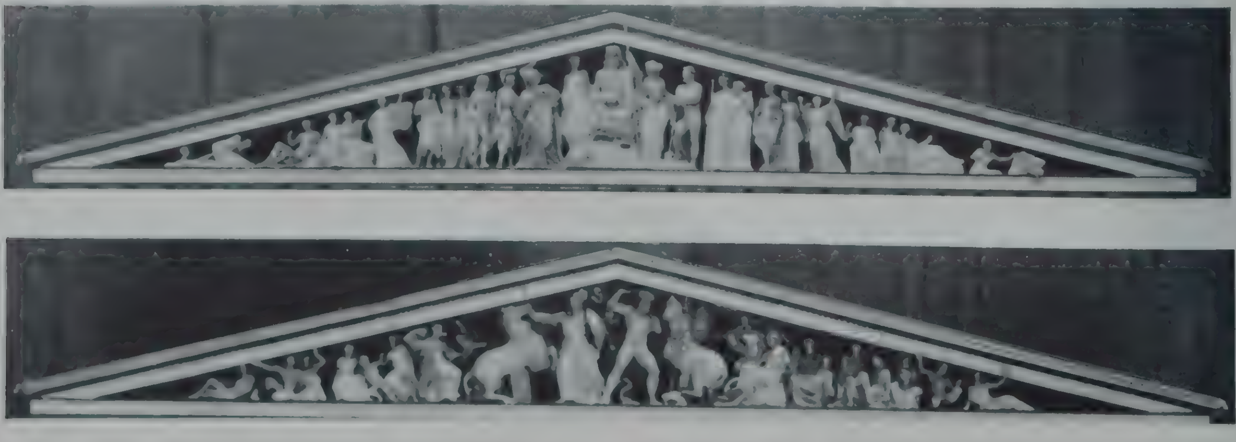


Pediments of the Temple of Zeus at Olympia
From Restoration in the Metropolitan Museum

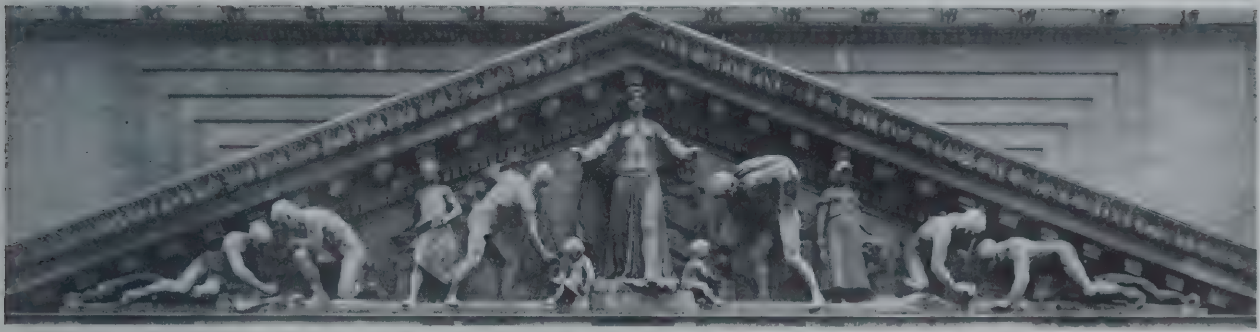
ment of its first sentence, in which the professor characterizes the triangular form as "so simple a condition"—a kind of contradiction that robs much technical writing of the clearness which should be its chief characteristic. And even Russell Sturgis says: "The supremely noble statues of the Parthenon pediments may or may not have made up an ideally fine design for the filling of the triangular space at either end"—a statement which, to a student certainly, must seem to beg the question by failing to supply a logical answer.

Among the first of the Greek pediments usually cited as a criterion are those of the Temple of Zeus at Olympia, a late archaic work, often dated as a little earlier than the Temple of Pallas Athene, or as contemporary with it. Judged solely from the remains, and even from the restoration, the composition of the figures seems too pervasively dominated by the shape of the space, and the relative scale of the figures is changed in one of the pediments far more conspicuously than in the other instance, which is likely to confuse the observer, as does any variation from established scale.

In all critical commentaries on the pediments of the Parthenon there is unanimous praise, and not infrequently some phrases that can well be taken as a sort of working basis by the modern sculptor. Nor is it entirely fair to judge exactly the artist's whole intention in the broken fragments that remain, or even in the various conjectural restorations that have been made. The restoration in the scale model in the Metropolitan Museum shows a pair of pediments that seem a little over-crowded and a little too diverse in the different scales of the figures,—but there is a note of inspiration in Sturgis' statement that the Parthenon sculptures "are accepted by all as the most perfect types of the human figure treated grandly in art." The note is still there, even when he qualifies thought about the Parthenon by saying: "Nude forms and drapery alike are the models of all perfection, and there is even a certain added firmness of mass and line, as of figures intended to have a severely limited field which they were to fill. And yet it cannot be said that the admirers of Greek architecture are quite sure, all of them, that the building would be better for what is,



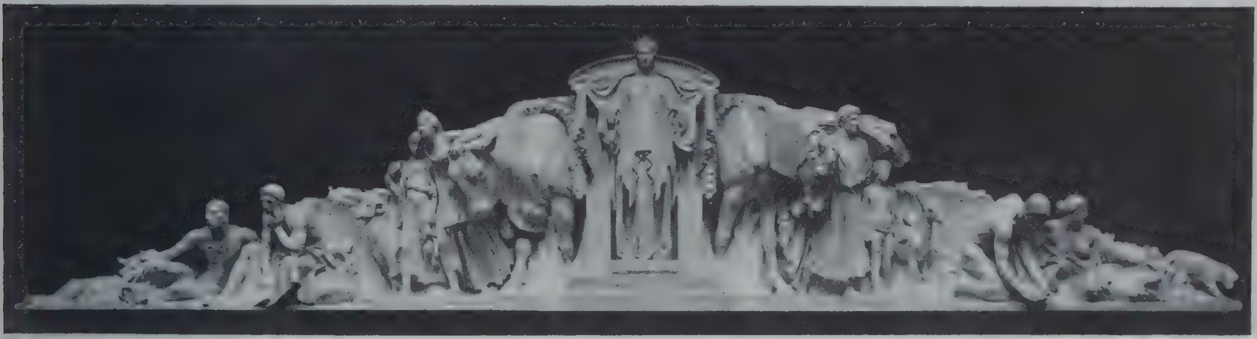
Pediments of the Parthenon
From Scale Models in the Metropolitan Museum



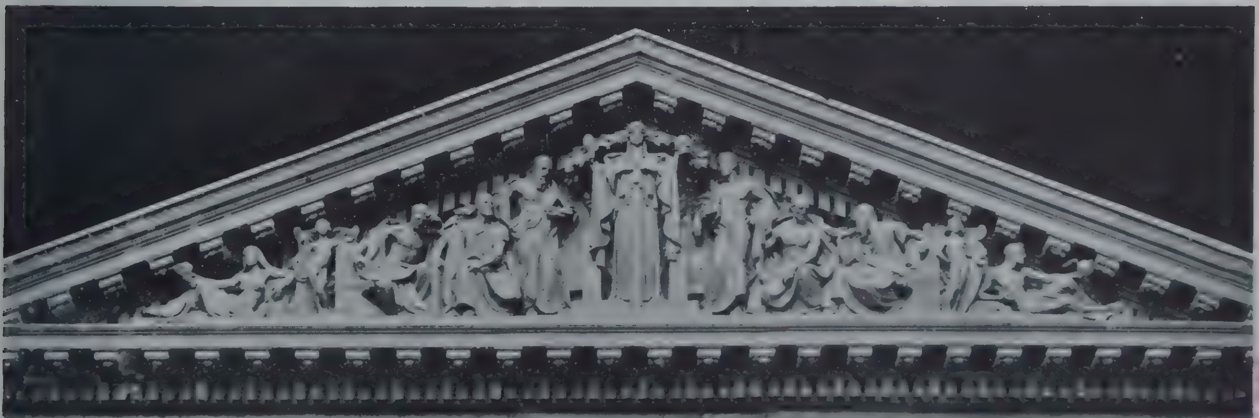
Pediment of the New York Stock Exchange
J. Q. A. Ward, Sculptor

after all, highly realized sculpture in the round." And after a comparison with the high relief metopes, he isolates one of the chief difficulties inherent in the problem of the pediment ". . . whereas we know that relief sculpture, both high and low relief, is the ideal adornment of a noble building, we cannot be equally sure of the architectural effect of statues set high above the eye, upon the broad shelf above the entablature." Such is the opinion of Sturgis.

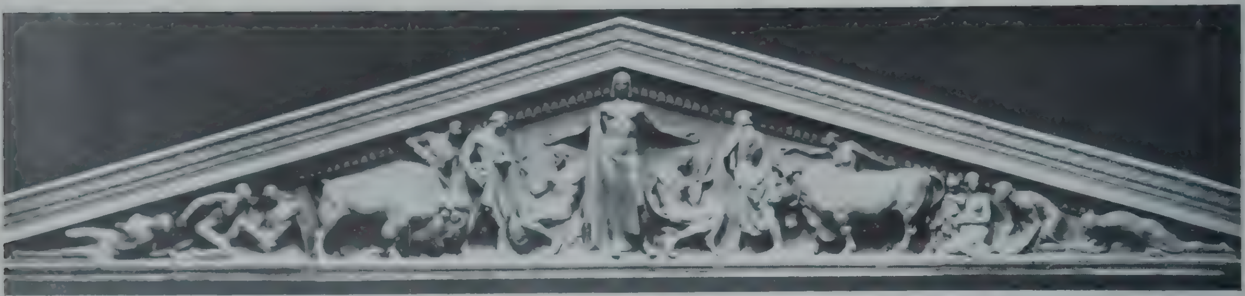
Tarbell is less doubtful, but he also is less concerned with the pediment figures as works of architecture than as works of art, when he says ". . . even in their ruin and their isolation, the pediment figures of the Parthenon are the sublimest creations of Greek art that have escaped annihilation." And we will read further only what Warren said in his "Foundations of Classic Architecture" before going on to the observation of a few modern versions of the problem of the pediment. The whole danger in the too general and often too extravagant apotheosis of the Parthenon pediments is that architects and sculptors today are inclined to feel that a chance no longer exists to do a good pediment—that the last good pediment in the world was designed (conjecturally) by Phidias, and that there is no use in trying very hard to do a really fine thing today. "The pediment sculptures," writes Professor Warren, in his lucid discussion of the Parthenon, "were groups of freestanding figures of heroic size, very carefully designed with reference to their mutual relations and to their positions on the building. There was no longer, as at Ægina and at Olympia, a rigid central



One Pediment of the Capitol of Wisconsin
Karl Bitter, Sculptor



Another Pediment of the Capitol of Wisconsin
A. A. Weinman, Sculptor



One of the Pediments of the California Capitol
Representing California of the Period of '49
Edward Field Sanford, Sculptor

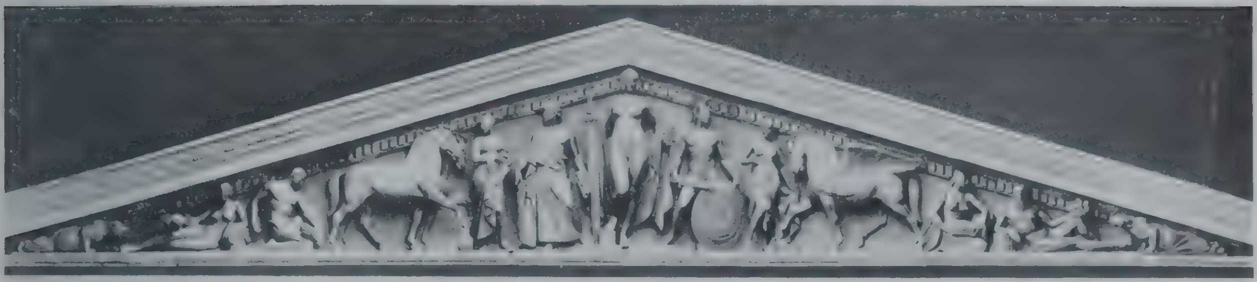
figure separating the two sides. In each case two figures—Zeus and Athena, Athena and Poseidon—balanced each other by an opposition of inclined lines. From the violent action of the central groups, with their miracles which provoke the astonishment of the nearer-divine spectators, the movement diminishes at either side to the cadence of the impassive figures near the angles. The groups—standing, then seated, then reclining—are combined with so harmonious a rhythm of lines that the adaptation to the slope of the pediment seems spontaneous and inevitable. The mastery of the external anatomy of the human form and the naturalism of treatment surpasses anything hitherto achieved in Greece, and reaches the highest bounds of sculpture, with a serene dignity worthy of the most monumental architecture. In all we can trace the directing mind, in the finest figures, such as the 'Fates,' perhaps that of Phidias himself."

This kind of eulogy, even if we disregard entirely its exact basis in the facts involved, or if we admit that it is justified by the facts, has undoubtedly had the unfortunate effect of intimidating the architect and sculptor today, at the same time that it glorified the achievements of classical antiquity. I do not wish to be understood as meaning that the pediments of the Parthenon have been unreasonably over-rated, but I do believe it to be unfortunate that the general effect of such criticism tends to discourage new effort on similar problems. There is no real reason why sculptors should not try with all their ability to design really fine pediments, even if those of the Parthenon have not been equaled in modern times.

With this thought in mind, it is interesting to examine a few important pediment compositions done in this country, and especially a recent pair designed by Edward Field Sanford for one of the new buildings of the California capitol at Sacramento. Of the two pediments from the capitol of Wisconsin, the arrangement of that by A. A. Weinman is excellent, not only in the scale of its figures but in their relationship and in the clever device of the exedra seat which gives four of the figures a logical pose admirably related to the slope. This is an example of a pediment in which too much architecture has invaded the territory of the sculptor, who would have had greater freedom without the dentils and modillions in the tympanum.

Illogical scale in the figures, as well as a feeling of restlessness, mars the pediment of the New York Stock Exchange, long regarded as a fine modern example of pediment design. The figures are not only out of scale with each other, but with the whole facade, and in four instances seem to hold their positions only by a distressingly precarious margin. Design of this kind may come about through too much belief in inspiration as a guiding factor. Inspiration is a splendid factor in any kind of creative art, but in a problem so exacting as the problem of the pediment, another factor, and one of inestimable value, is intelligence. Intelligence will see an artist through to a logical and well reasoned result, which is a high form of art, even though inspiration may elude or betray him. Of all artistic problems related to architecture, the problem of the pediment demands all the intelligence of which an artist is capable, involving not only a thorough appreciation of the architectural aspect of the thing, but an appreciation as well of the importance of working with the architect, and with a study of the pediment, from

Details of Above Pediment, California Capitol, Sacramento



The Second Pediment of the California Capitol
Representing California of Today
Edward Field Sanford, Sculptor

the very start, in its relation to the entire building.

Thus Mr. Sanford, in his preliminary studies for the Sacramento pediments, modeled them at one-inch scale, in sketch form, as part of the whole building, not as an isolated project. And it is only in this way that any relationship in harmony of scale, or in harmony and design in the massing of the figures, can be achieved. Quite aside from poses, or from any symbolic meaning the figures may have, the elements of pediment design as confronting the artist are lights and shades and voids and solids. With these elements he must construct a logical design that will not only be finely balanced and coördinated in itself, but must also be finely related to the whole building. The elements of design as Mr. Sanford employed them in the Sacramento pediments were elements of weight, both physical and optical, voids and solids, and inclining lines—and always a sense of scale. Adhering to classic precedent, he utilized heroic scale for the central figures, but kept all the others in uniform scale. And as another very important consideration, he modeled the drapery of his figures to effect in them the same "color" as that of the columns below.

In the matter of weight in design there is always a nice distinction as between figures that *look* heavy and figures that actually *are* heavy. To this distinction Mr. Sanford was very sensitive, and placed all his figures directly over the spaces between the columns below. His idea here—and an excellent idea—was to give the masses of his figures the optical effect of securely resting on the sturdy architrave blocks, and at the same time to avoid the unfortunate effect that would have resulted if the figures had been placed so that they seemed to be continuations of the columns. Such a logical system as this escapes any danger of overcrowding or of a too sparse treatment, and must come nearer to achieving that quality of "rhythm" about which so many critics have written, and which so few seem able to define.

In these two pediments, also, there is a well articulated balance between the voids and solids, and none of the feeling of overcrowding which has marred many otherwise good pediment compositions. Inclining lines in the figures at right and left of the centers lead effectively, but not too conspicuously, to the central figures, so that the compositions have movement, but an organized movement very different from mere restlessness. In his adherence to such fundamentals Mr. Sanford has proved himself not only highly observant of the merits and defects of many executed pediments, both ancient and modern, but has shown himself a lucid and logical thinker as well. While inspiration was by no means absent, his work here clearly reflects a high degree of intelligence, of analytical reasoning as the guiding light.

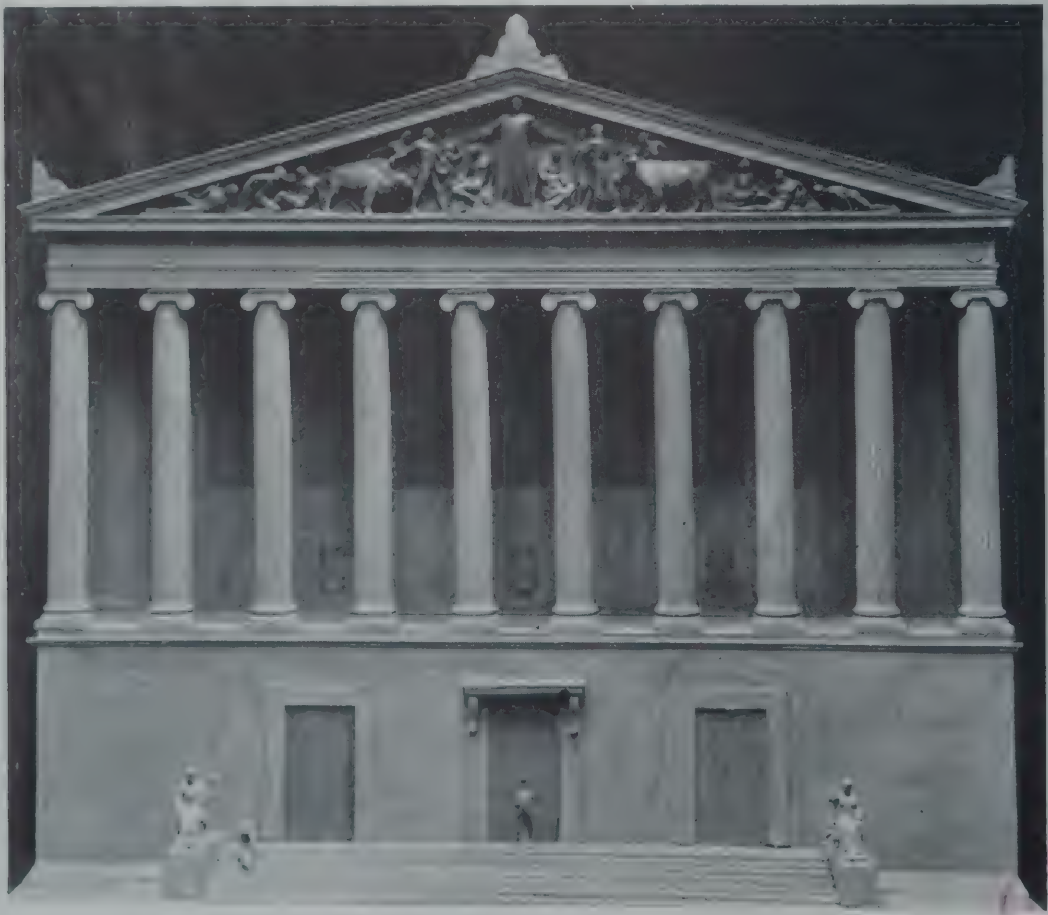
The subjects for the figures in classic pediments were generally taken from mythology pertaining to the temple, or from its presiding deity, and in most cases the two pediments are related to each other in the significance of the subjects chosen. From the central figure of the pediments figures of lesser importance extend to the extreme angles. In planning the subjects for the group in the two Sacramento pediments, Mr. Sanford very properly gave thought to public appeal,—a thought far too often deemed undignified by many architects and sculptors. Yet I think it is not a very debatable point, the point that

Details of Above Pediment, California Capitol, Sacramento a work of art is more rather than less a work of art if it is keyed to the taste and interest of its own time. The subjects of the pediments, then, are California of the '49 era and California of today, treated very rightly, in classic allegory in character with the architecture. There may some day be an architecture that will assimilate realistic sculpture--but it is not yet on the horizon, and Classic architecture will go on demanding Classic sculpture as its accompaniment.

The thought paralleling the chronological symbolism of the pediments is that of the world giving to California in the days of its early settling, and of California giving to the world today. Thus, in the first pediment the central figure is that of a primitive woman, strong and rugged. Right and left of this figure are figures symbolizing the natural barriers that confronted the early settlers—the rivers and mountains. Here, too, are the pioneers themselves, oxen, and the buffalo of the plains. Near the extreme right are a mother and child, typifying the new generation, and the acute angled corner is skillfully filled by the figure of one of the pioneers, blowing a fire. By way of contrast to this more peaceful and constructive aspect of the settling of California, the left end of this pediment introduces a fighting group, the rougher element in early days.

The central figure of the second pediment, California of today, shows a cultured California, wearing the helmet of Minerva, goddess of wisdom; at her left and right are two sons, statesman and warrior. In succession, leftward, extend figures symbolizing floral beauty and richness, horses, agriculture, the harvester, progress and, in the extreme angle, a bear, the state's symbol. To the right, the warrior son bears the seal of the state, and there are figures symbolizing natural beauty,—the figure of Pegasus,—inspiration and poetry, treasures, commerce and harbors and, lastly, the mountain lion.

This, however, is the Baedeker aspect of the design of the pediments, and while it is agreeable to have the various figures mean something as related to the history of California, Mr. Sanford's real achievement should be measured, rather, in terms of architecture and sculptural design as related to architecture. He has approached the problem of the pediment with an open mind and a clear eye, giving due recognition to the classical past history of the pediment, but not allowing himself to be intimidated by it. More than this, he has approached it intelligently, basing the main premises of his composition on the architectural facts of the building in which the pediments were to be placed, and recognizing as the essentials of the composition the inescapable fundamentals of void and solid, light and shade, weight, mass, balance, rhythm, and bringing every part of the entire design into its proper relationship.



California Capitol, Sacramento
From One-Inch Scale Model

The Steinhart Aquarium, San Francisco

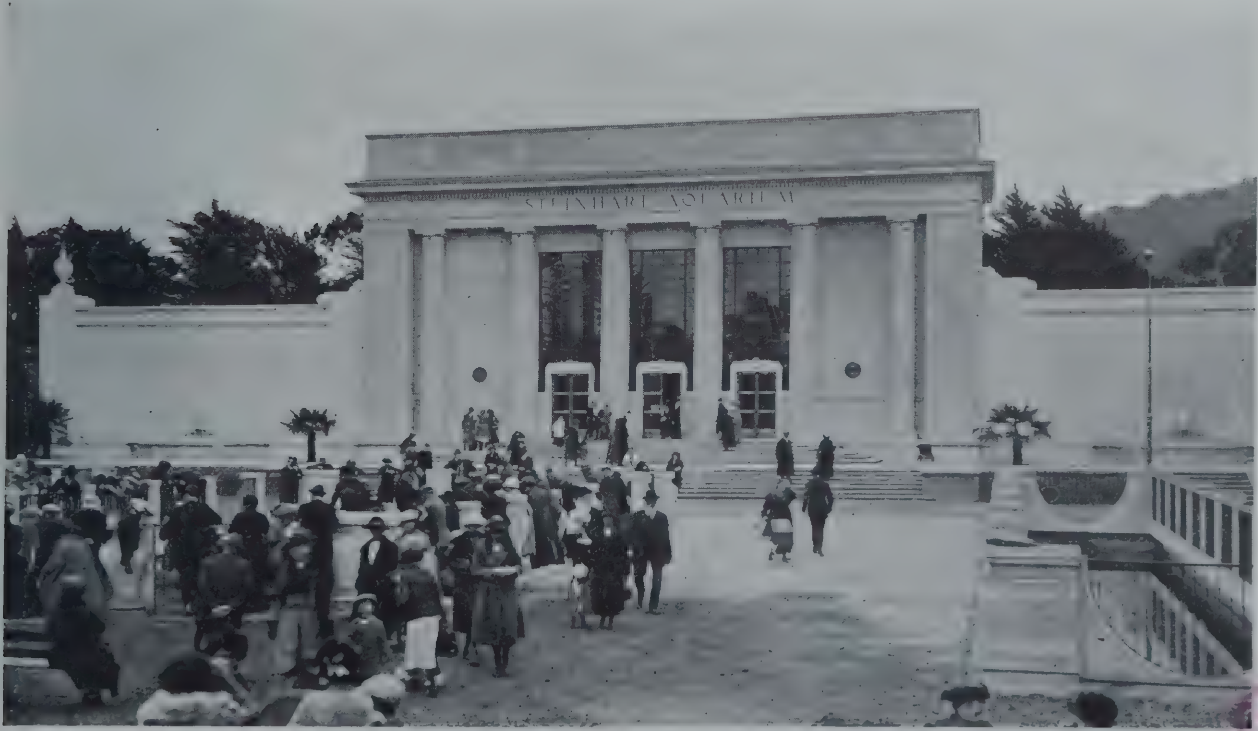
LEWIS P. HOBART, Architect

THE Steinhart Aquarium, located in Golden Gate Park, San Francisco, is another of those splendid monuments to private generosity with which San Francisco is adorned. It is of beautiful and dignified architecture, and was built as a unit in the group of buildings of the California Academy of Sciences. The approach to the Aquarium is through an open court, in which are five large pools, containing seals, sea lions, porpoises, giant turtles and other monsters of the deep. The three largest pools in the court have a swimming length of 80 feet.

One enters the Aquarium through a combined colonnaded vestibule and "swamp" room, which is top-lighted. The promenade around the swamp, which is on a slightly lower level, presents a tropical appearance because of the planting around the walls. In the swamp, among the plants, can be seen small aligators, turtles, lizards and harmless water snakes. The color of the walls and columns is sea green, and the wall has a tile base and wainscoting showing motifs of sea life. The floor is of red tile with inserts of tile decorated with crabs and lobsters. Neptune's horses, with maps of the oceans, are painted above the entrances to the tank rooms.

The Aquarium proper, which is a low structure arranged around three sides of the swamp room, contains the fish tanks. There are 60 large tanks, in addition to 60 small tanks and a hatchery, through which, due to an abundance of top light over them, light is diffused through the water and glass fronts into the public space, which is kept fairly dim so that the fish show to the greatest advantage. These tanks contain fish, crabs, eels, sharks and many varieties of trout, besides other invertebrates.

For the mechanical equipment there is a supply of salt water obtained by an 8-inch pipe line direct from the Pacific Ocean, and there are salt water storage tanks of about 2,000 gallons each for emergency purposes. The hot and cold water systems are worked by automatic, electrically-driven pumps through tanks on the roof. The water for the tropical fish is kept warm, and for the cold water fish cool by a heating and refrigerating plant. The heating and refrigerating machines are controlled by thermostats. The water is circulated, returning from the fish tanks through filters to the storage tanks, and is then used again. Four separate systems of water, each of a different temperature, are maintained. Lead pipes are used throughout for the salt water system, and all plumbing is laid in open conduits to make easy repairs and control. Any tank may be shut off without in any way affecting any other tank in the circulating system. Air is introduced into the tanks by aërating the water through loosely fitted glass pipes as it enters the fish tanks. The basement of the Aquarium contains, besides the heating, refrigerating and pumping plants, a kitchen where fish food is prepared, and offices, libraries and laboratories, as well as an apartment of three rooms for occupancy of the superintendent and family.



Entrance Court, Steinhart Aquarium, San Francisco

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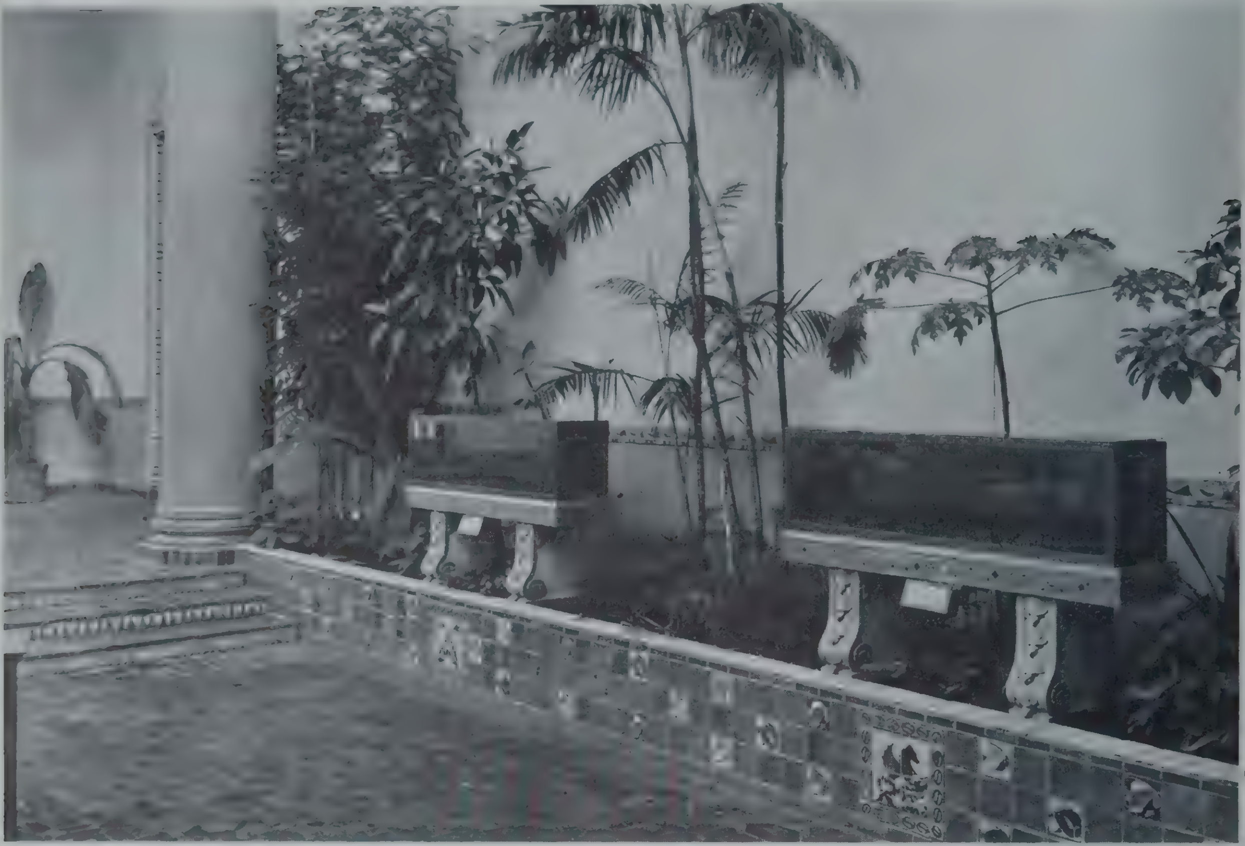
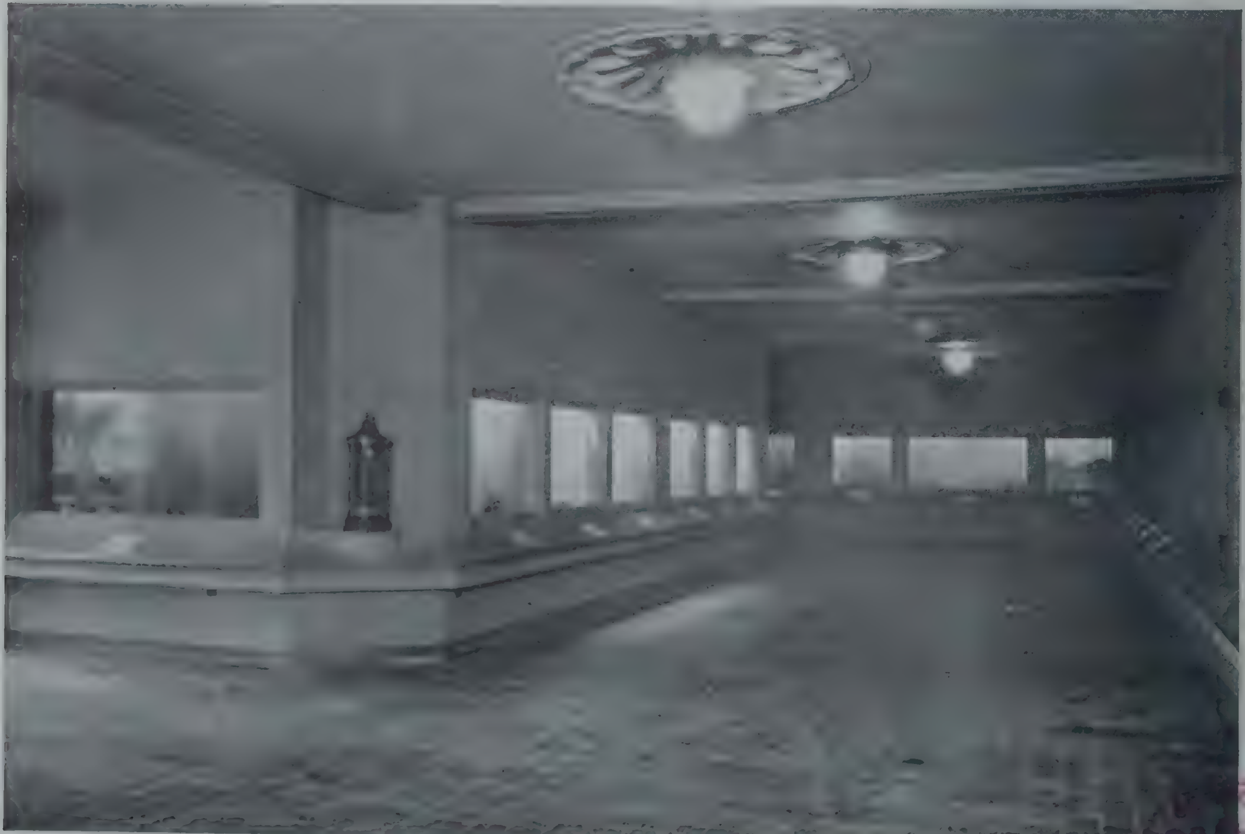


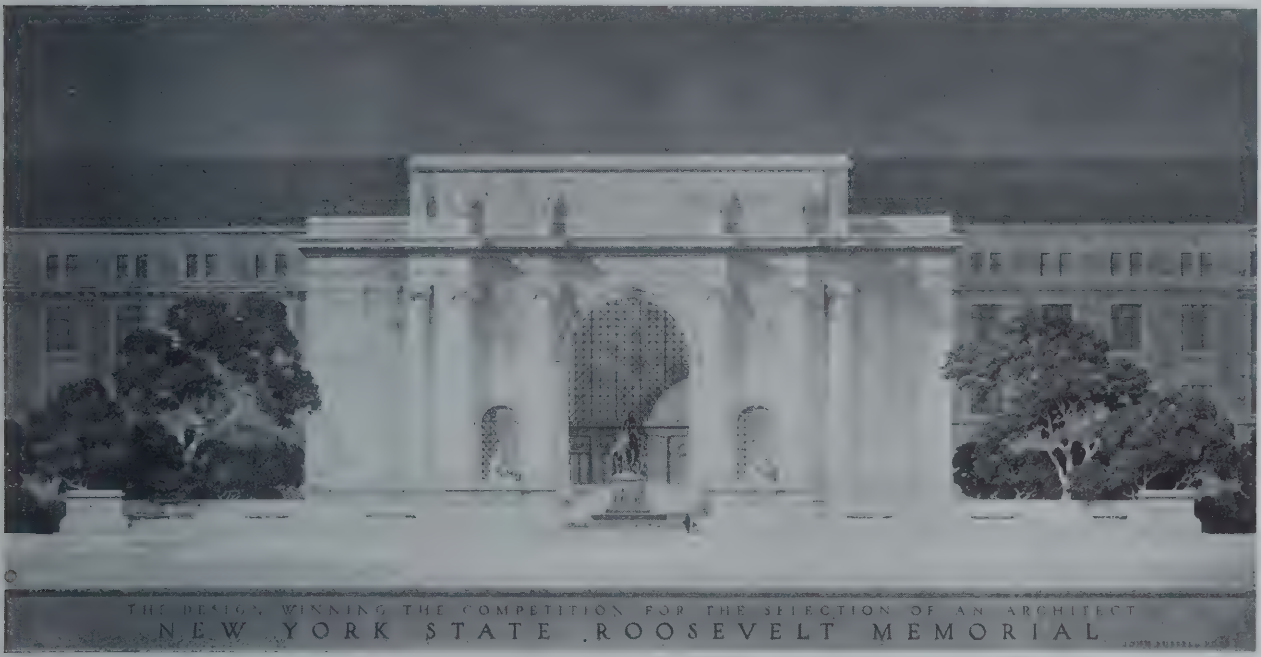
BALANCED AQUARIUMS IN SWAMP ROOM

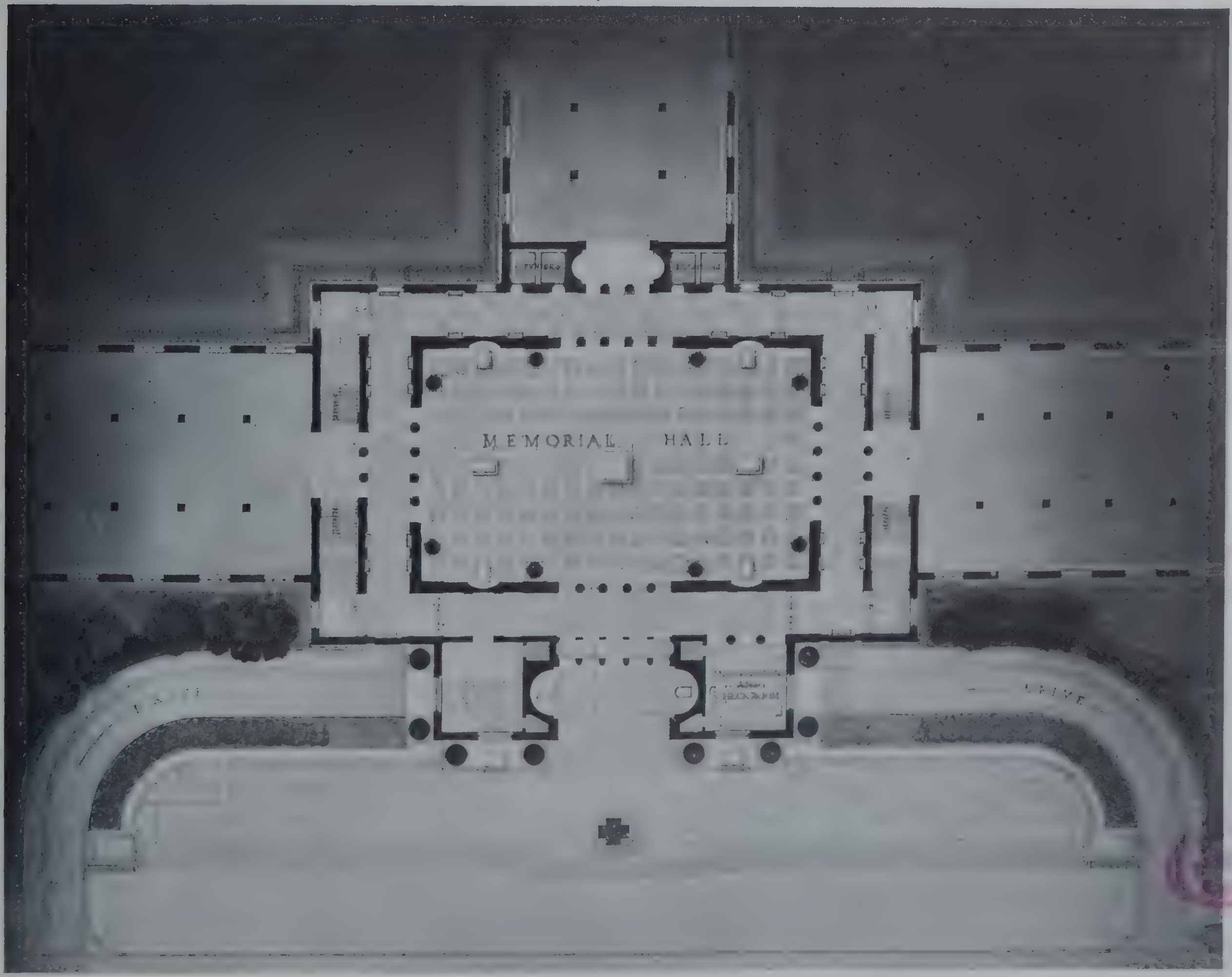


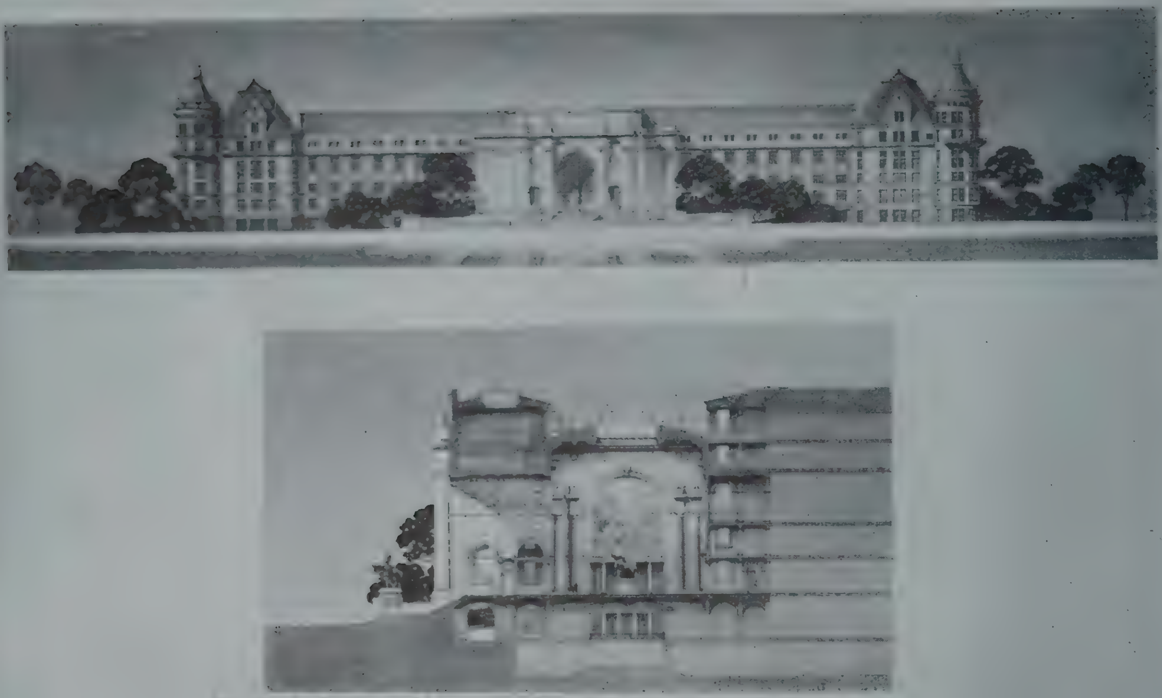
INTERIOR, STEINHART AQUARIUM, SAN FRANCISCO
LEWIS P. HOBART, ARCHITECT

The New York State Roosevelt Memorial Competition

WON BY JOHN RUSSELL POPE, ARCHITECT


THE DESIGN WINNING THE COMPETITION FOR THE SELECTION OF AN ARCHITECT
NEW YORK STATE ROOSEVELT MEMORIAL
JOHN RUSSELL POPE





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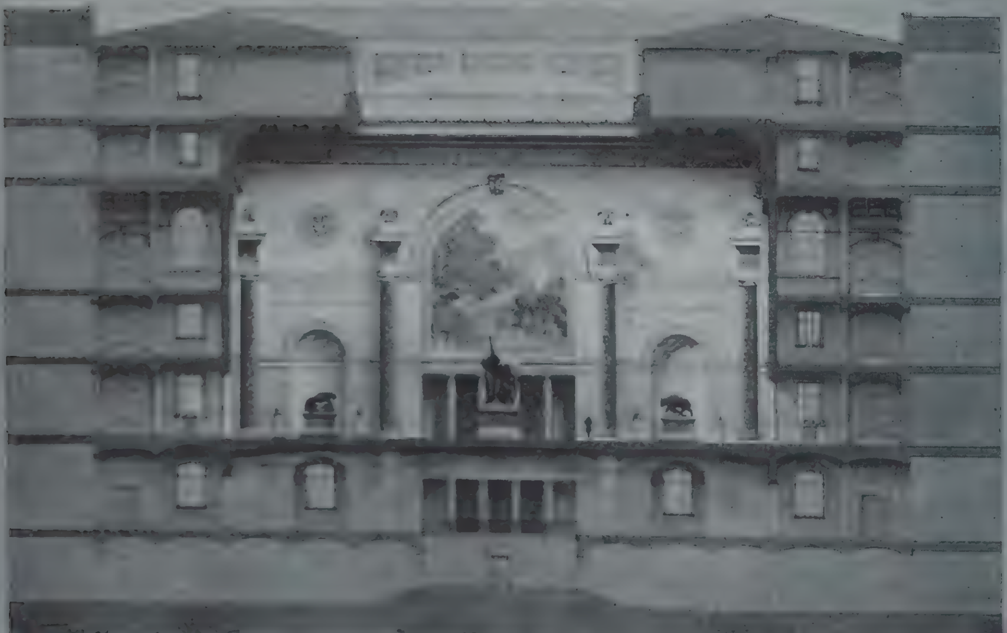
NEW YORK STATE ROOSEVELT MEMORIAL



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NEW YORK STATE ROOSEVELT MEMORIAL

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The War Memorial at Southampton, N. Y.

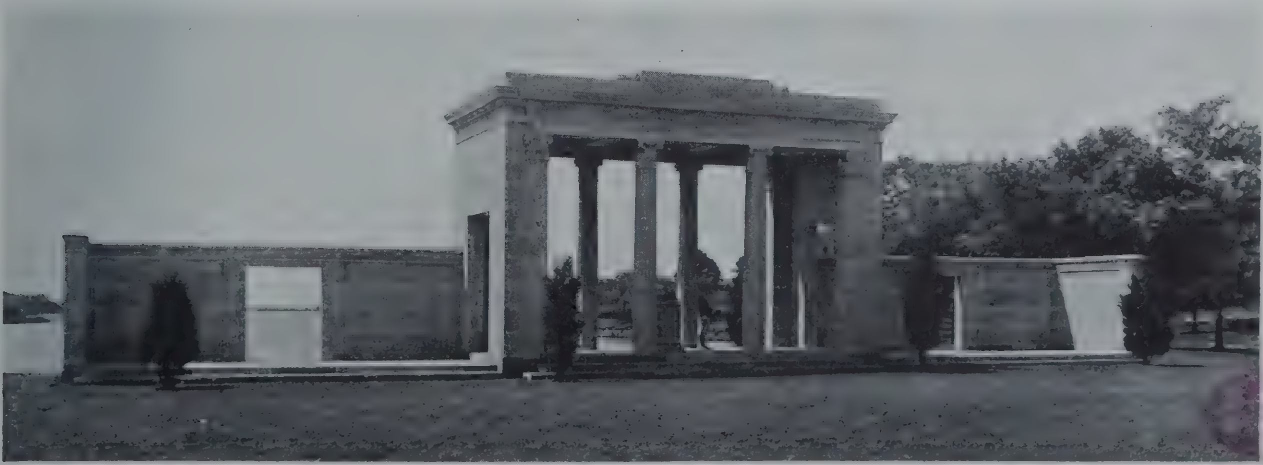
GOODWILLIE & MORAN, Architects

THE idea or purpose of the Southampton Memorial was to properly and fittingly commemorate the service of all those, living as well as dead, who served their country in the World War. After various suggestions had been studied, it was agreed by the committee in charge that the memorial should properly express the appreciation of such service and sacrifice, not in the form of a clubhouse, hospital or hall, but rather in a more æsthetic form, which would significantly demonstrate the spiritual ideas of patriotism, sacrifice and gratitude, as applied to those thus commemorated.

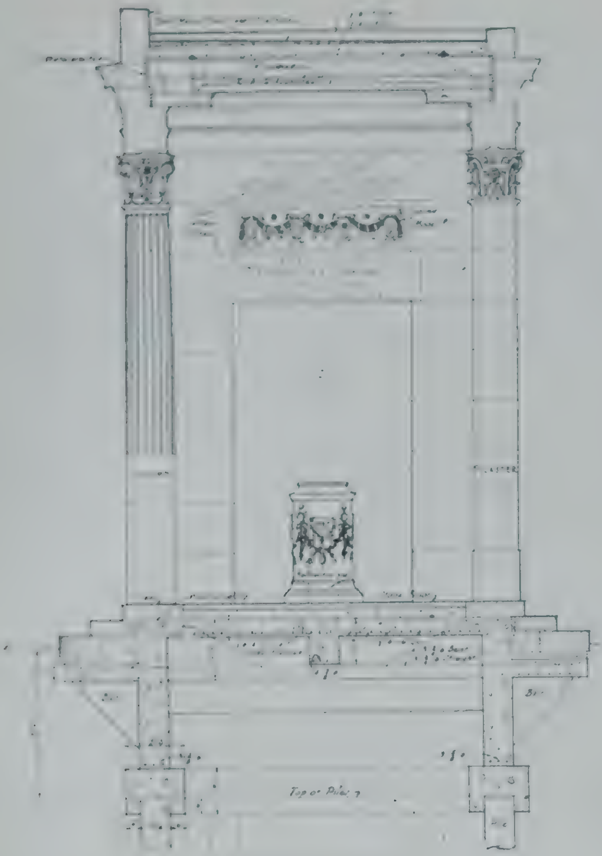
It was then decided to locate the memorial in the park at the head of Lake Agawam, and the committee engaged A. Stewart Walker, of Walker & Gillette, to act as its professional adviser and to formulate a program for a competition and select a design. The program was prepared to meet the requirements of the American Institute of Architects, and was of what is known as the "open" type.

The description accompanying the winning design in the competition will give, perhaps as well as possible, the underlying thought: "In considering this problem, it appears to the designer that there exists one salient point on which a proper scheme for this site and setting must be predicated. It must have as a background Lake Agawam with its surrounding hills and distant dunes, so characteristic of Southampton. It would further appear that the proper form for the memorial design would be one on which the names of those we are to commemorate could be clearly and legibly inscribed; one which would be an integral part of the surrounding landscape, and primarily one which would not interfere with the natural beauty of the site, but which would tend to add to, or frame, this beauty. The designer therefore submits the scheme herewith, consisting of a platform slightly raised above the level of the ground, which by its contour calls for a horizontal treatment, the central portion to be three steps, and the side portions two steps above grade. On this platform, in the center, would be erected an open temple, covered by a roof for shelter; on the interior walls of this temple would be inscribed the great victories of the war, and in the center, there would be a suitably inscribed commemorative altar of victory. To the left and right of the center it is proposed to erect extending walls, providing space whereon the names of those who served may be inscribed. It will be noted that the central portion or temple is open, and that openings have been placed in the left and right extending walls, so as to frame pictures of the lake and hills beyond. The structure is intended to be erected in limestone, with flagged terraces where open, and cut stone pavement where covered. The landscape treatment in connection with the monument will be of the simplest sort; the existing large trees in the center of the site would be made a component part of the plan, and simple planting of cedars and evergreens, with perhaps barberry or privet hedges marking the path from the highroad to the monument."

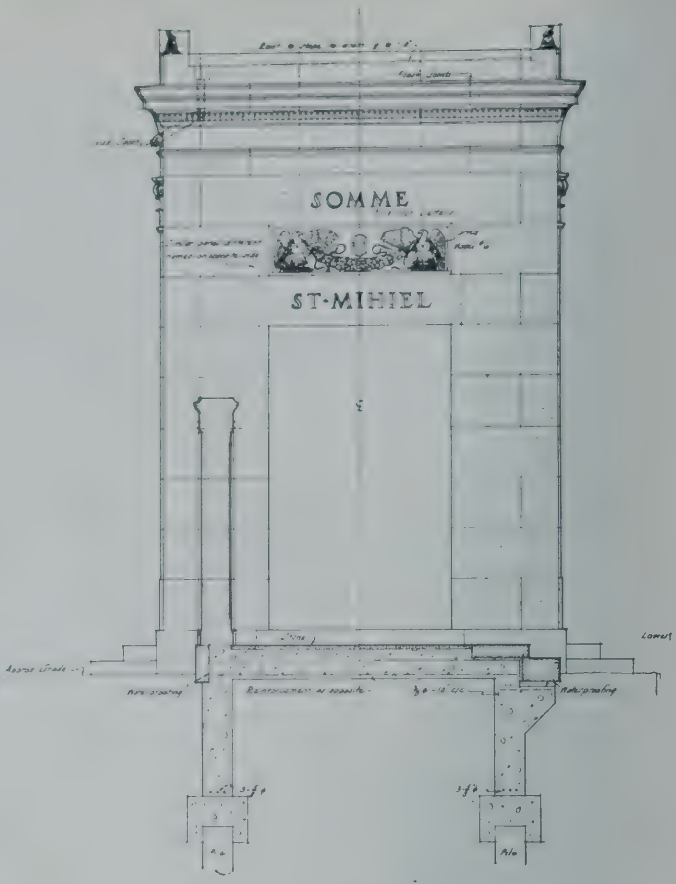
The structure is of selected Indiana limestone, with a lead roof. The modeling for the ornament was done by Paul Wiehle, from full-sized drawings made by the architects. The large exterior panels show eagles, with laurel and poppy swags encircling shields of the two great allies, France and England, and on the interior panels the shields of Belgium, Portugal, Roumania, Italy, Montenegro, Russia, Japan and Serbia appear, joined by swags of immortelles. On the interior panels, the names of those who died are carved and gilded. On the flanking walls are carved, in Classic lettering, the 325 names of all those who served. At the center of the colonnade is placed a commemorative altar, on which are carved the dates of the war and the shields of the State of New York and the United States.



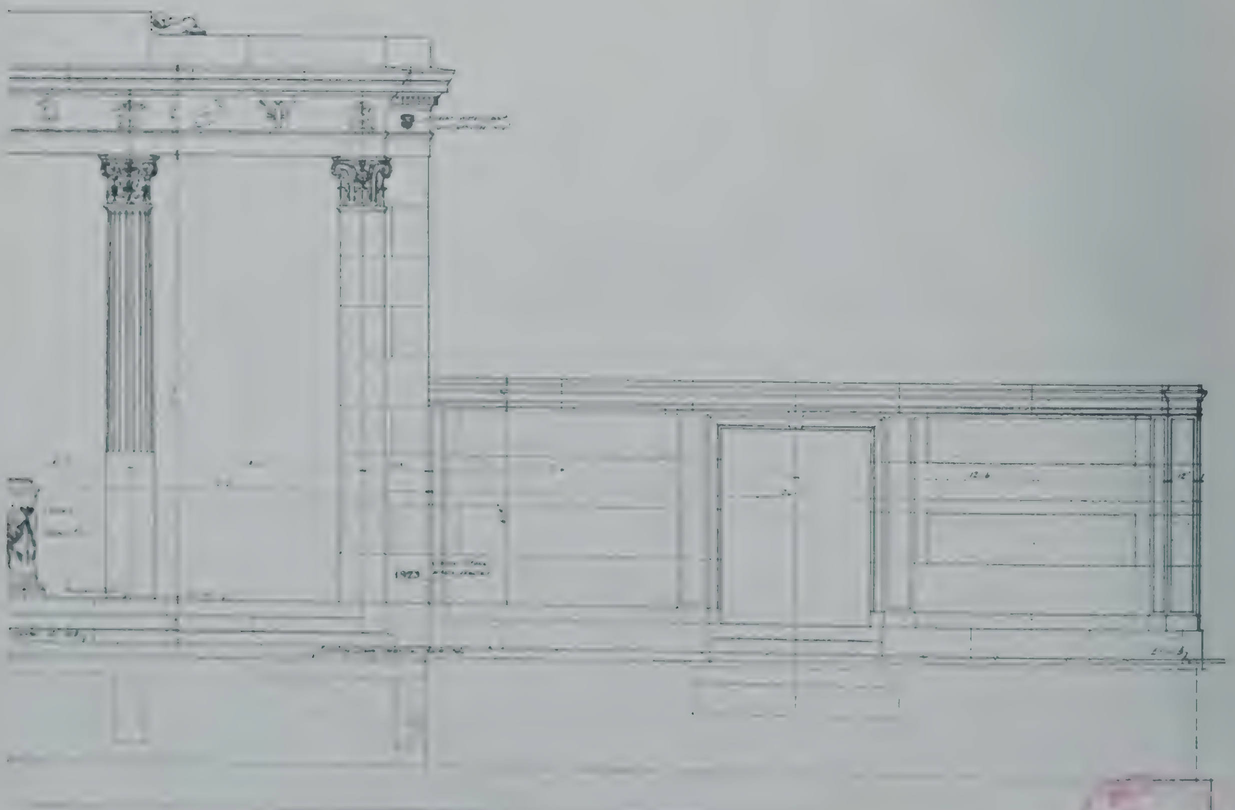
Lake Agawam Forms the Background for the Memorial



TRANSVERSE SECTION



EAST ELEVATION



ONE-HALF FRONT ELEVATION

WAR MEMORIAL, SOUTHAMPTON, N. Y.

GOODWILLIE & MORAN, ARCHITECTS

The Guild Theater, New York

C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, Architects

THE recent completion of the theater for the Theater Guild in New York marks the culmination of seven years of hard and successful work on the part of this interesting and unique organization. To secure a beautiful and permanent home for its work was an almost unhoped-for achievement, and all who have been so privileged as to contribute to or take part in its activities should be justly proud of its accomplishment. One has only to recall the most successful theatrical productions of the past few years in New York to realize how great has been the achievement of the Theater Guild. At least three of the most popular plays of each season have been among the several selected, conscientiously studied and successfully produced by this organization. So it is not surprising that the idea with which the original Guild group began its experimental career has been enthusiastically supported by an ever-growing host of patrons, or that the organization has grown to proportions quite beyond the most optimistic dreams of its founders.

When the new Guild Theater in West Fifty-second Street formally opened its doors with a colorful and convincing production of George Bernard Shaw's clever satire, "Cæsar and Cleopatra," the enthusiastic audience was profoundly impressed by the rugged and refined detail of the beautiful Italian interior. The theater is entered through a spacious lobby with groin vaulted ceiling and travertine walls, with details such as doors, ticket windows and radiator grilles skillfully carried out in the Italian style. From the entrance lobby, three steps lead down to the large upper lounge, at the right of which broad steps lead through an open arch to a wide landing from which stairways ascend on either side to the floor of the orchestra immediately above. On the left side of the upper lounge or main foyer, through an open arcade leading down three steps, the lower lounge is reached. This is furnished in homelike fashion with comfortable couches and easy chairs, long tables and lamps in the Italian style, grouped conveniently and attractively around a great fireplace at the middle of the outside wall. At one end of this comfortable lounge a small refreshment booth is seen through three low arches, while on the opposite wall an Italian doorway gives access to a retir-

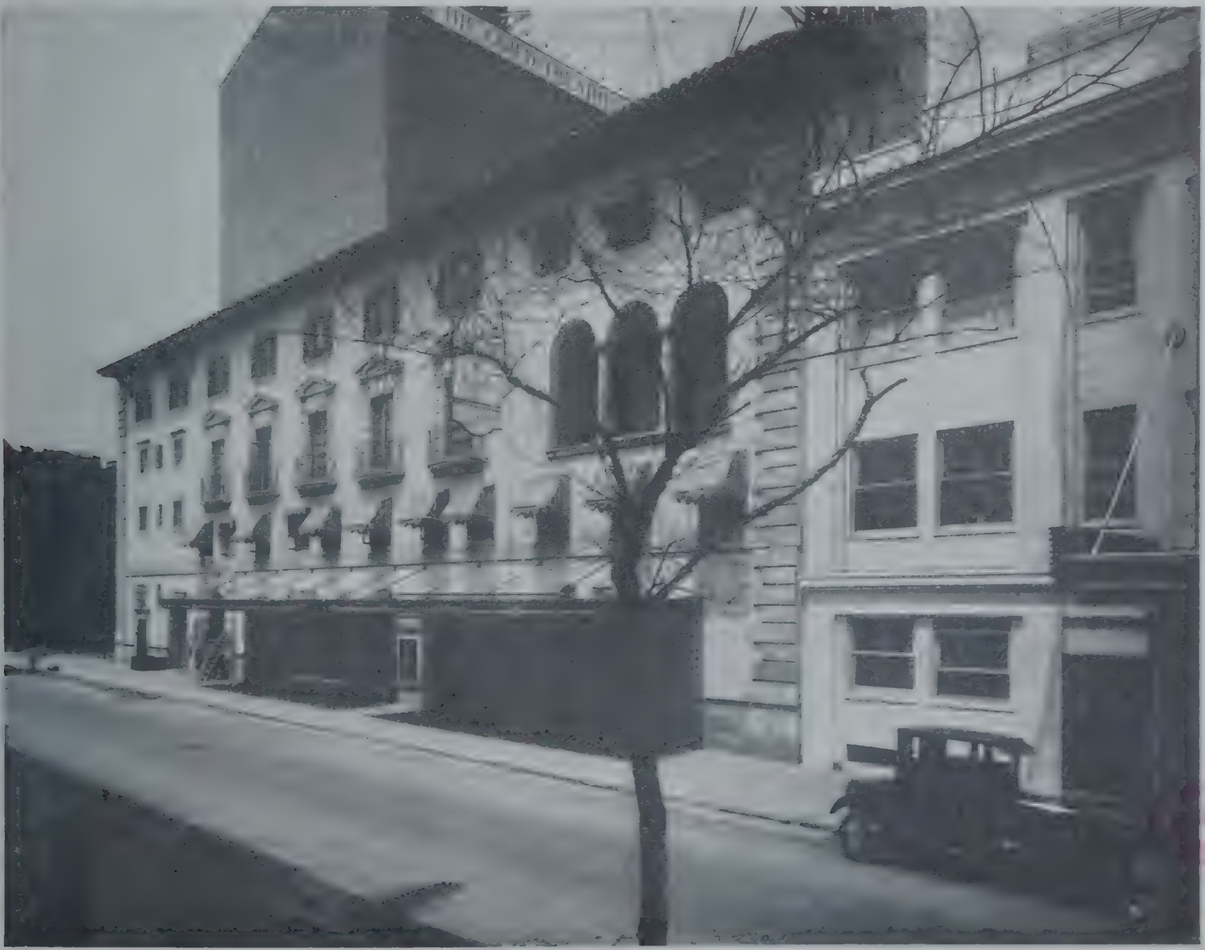
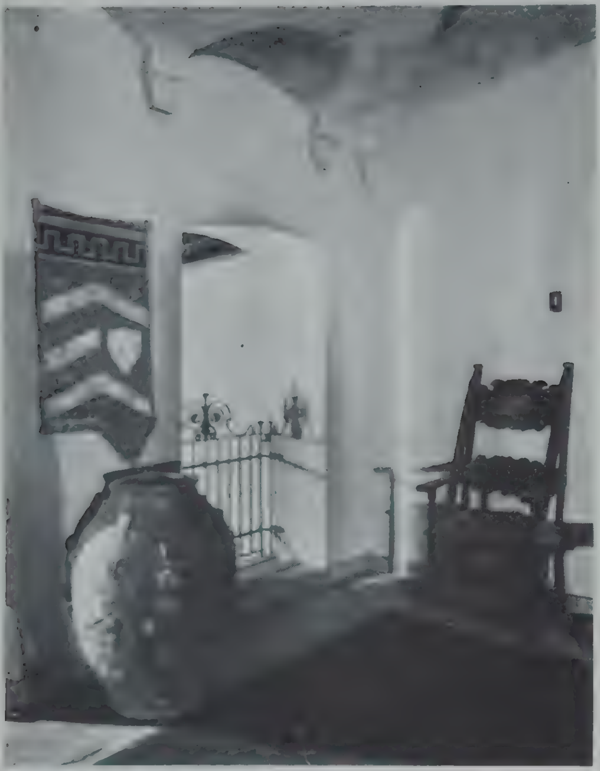
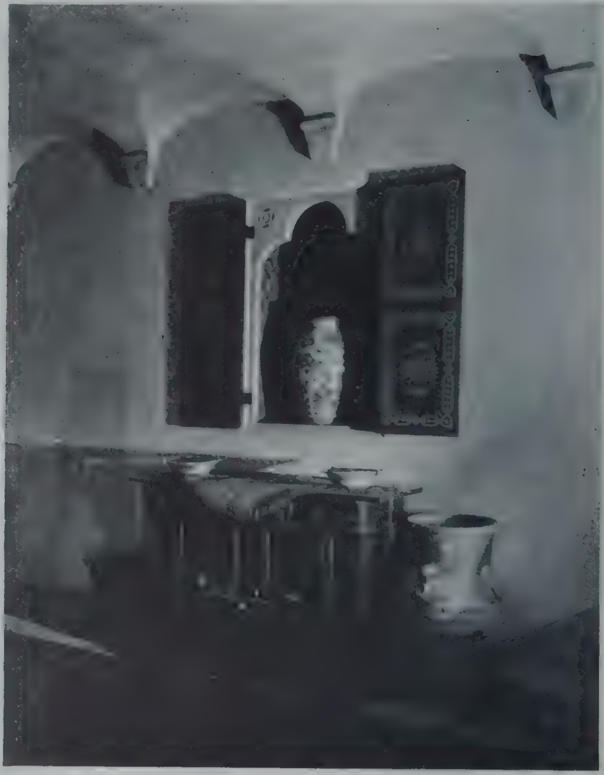


Photo. John Wallace Gillies

Front Facade, The Guild Theater, New York

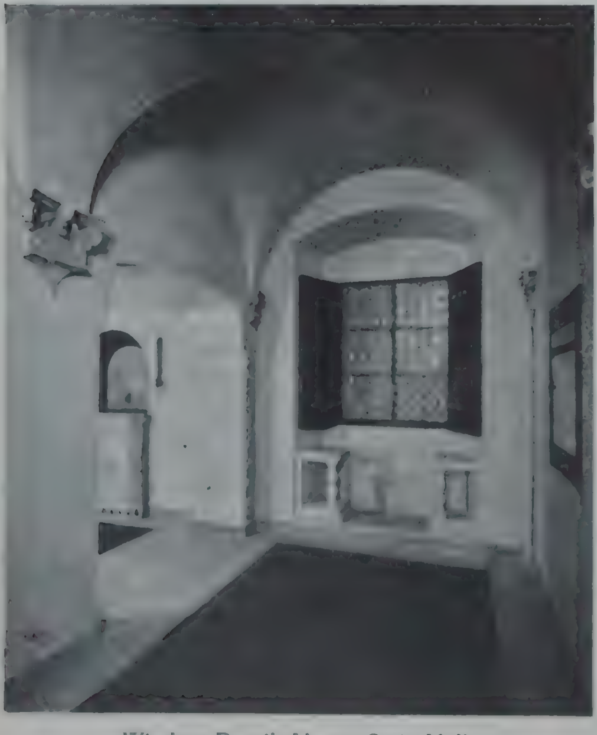


Detail, Upper or Entrance Lounge



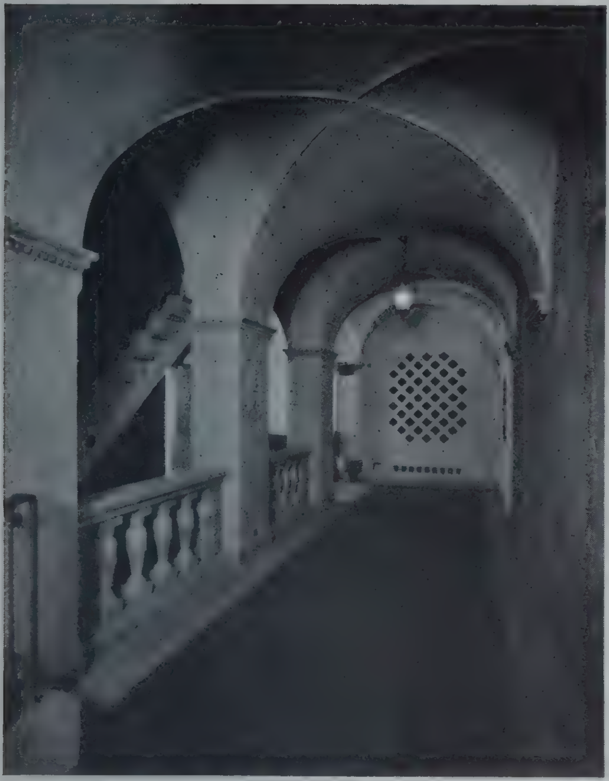
Detail, Wall Niche and Antique Credenza

ing room for women. The walls of this rest room are colorful in tones of Italian blue, elaborately frescoed with an all-over pattern in typical Italian style. This rest room is also comfortably furnished with chairs, tables and lamps of appropriate design. Richly paneled walnut doors conceal the toilet rooms beyond. In similar fashion, at the end of the upper lounge or foyer, opposite the entrance doors, a single monumental doorway leads to a men's smoking room. This men's room also shows colorful wall decorations in all-over pattern of red, green and blue. Here again the carpets and furnishings are rich and harmonious in color and style. At the right of the entrance to the upper lounge is an ample coat room, the walls of which are painted in a rich Pompeian blue; the door shows an interesting Spanish baluster treatment. In contrast to the neutral color of the glazed antique plaster walls, a richly colored carpet of Italian design is used to cover the floors of both upper and lower lounges. The wall fixtures, which are made from frames of antique Italian "cantaglorias" or altar cards in dull gold or polychrome, in which the illuminated or printed text has been replaced by mirrors, also give a note of added color and interest. A small bookshop in one corner of the upper lounge is another convenient and engaging detail. The ceiling of the upper lounge is a low barrel vault, covered with rough plaster.

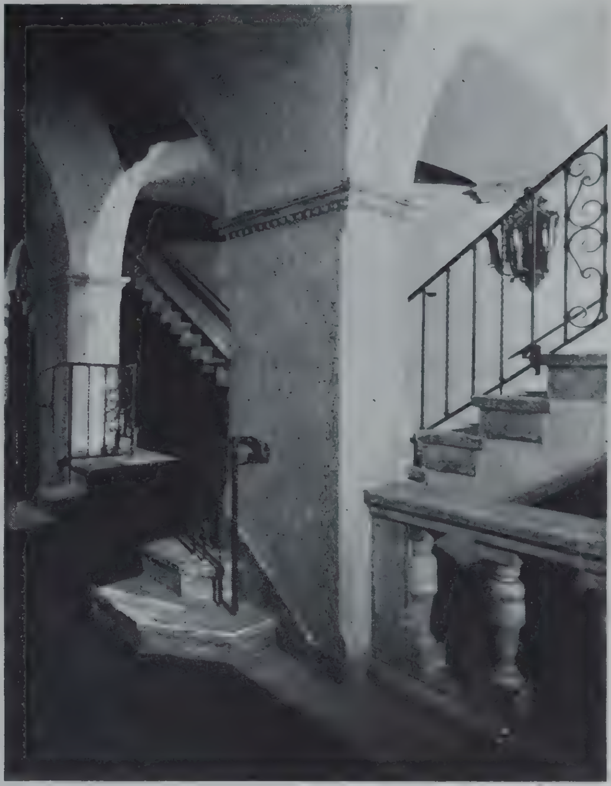


Window Detail, Upper Stair Hall

Ascending the stairway through an interesting Italian stair hall with recessed window and seats at one end, the orchestra floor is reached. Large doors in the Italian style at either end of the stair hall lead directly to the side aisles and rear of the auditorium. In the interior of the auditorium the style of the Italian Renaissance is again expressed in a very successful and dignified manner. Rough plaster walls, tinted and glazed down to a golden hue, are relieved by door trim and columns of travertine. The side walls of the theater curve gracefully to the stage, where the usual proscenium arch with its heavy



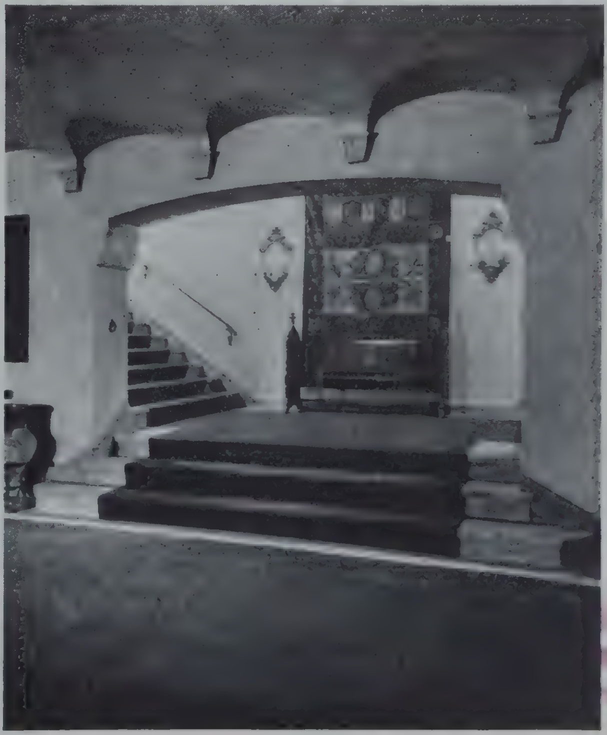
Detail, Stairway Corridor



Detail, Main Stairway

mouldings and decorations is happily omitted, producing an effect of unusually close and intimate connection between the audience and the actors. This effect is still further heightened by the omission of an orchestra pit for musicians, and by dropping the level of the stage itself a foot lower than is customary. This latter innovation makes it possible for the occupants of the first row of seats in the orchestra to observe the play without any discomfort to the muscles of the neck. Above the rough plaster walls, modillion cornices in the Italian style support a deep, painted frieze just below the ceiling, the work of Victor White assisted by Margaret White and Stanley Rowland. This frieze is decorated with interesting portraits in subdued colors of characters taken from the many successful plays of the Theater Guild, and of people prominently connected with its administration and with the design and construction of the theater. This frieze is broken at intervals by massive corbels of plaster, painted to imitate walnut, which apparently support the massive beams of the ceiling, which in reality are steel girders covered with plaster and painted to imitate walnut. Small transverse beams occupy the ceiling spaces between the heavy constructional beams. All are painted to imitate walnut and decorated in color and gold after the Italian fashion, which further adds to the richness and depth of the color effect of the auditorium. This richness is still further aided by the use of fireproofed walnut for the wainscoting at the rear of the auditorium under the balcony and for the various exit and entrance doors. Five entrance doors, three of which are arches, open on the south side of the theater directly into a separate enclosed stairway which leads down a few steps to exits opening on Fifty-second Street, while the exits on the north of the theater open onto a large rear court, thus giving ample egress.

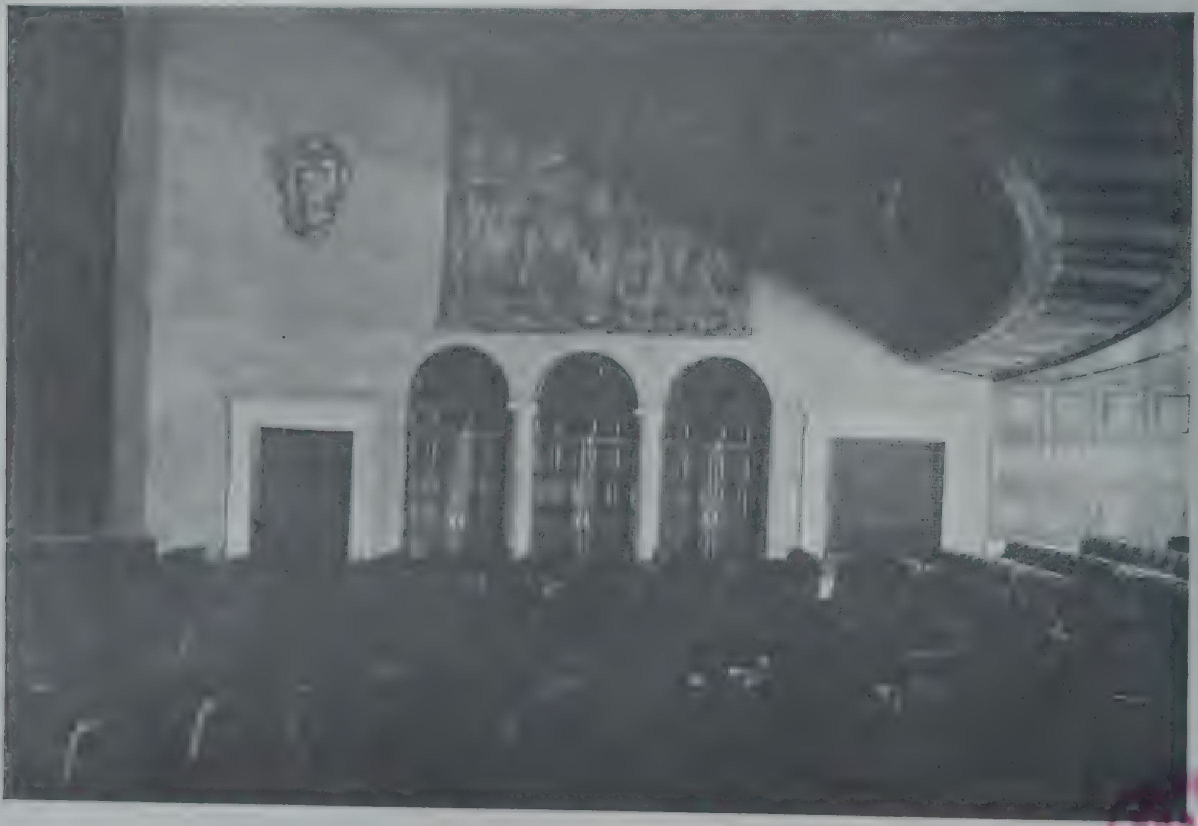
The floor of the auditorium is covered with a figured carpet in red and brown, and the seats are



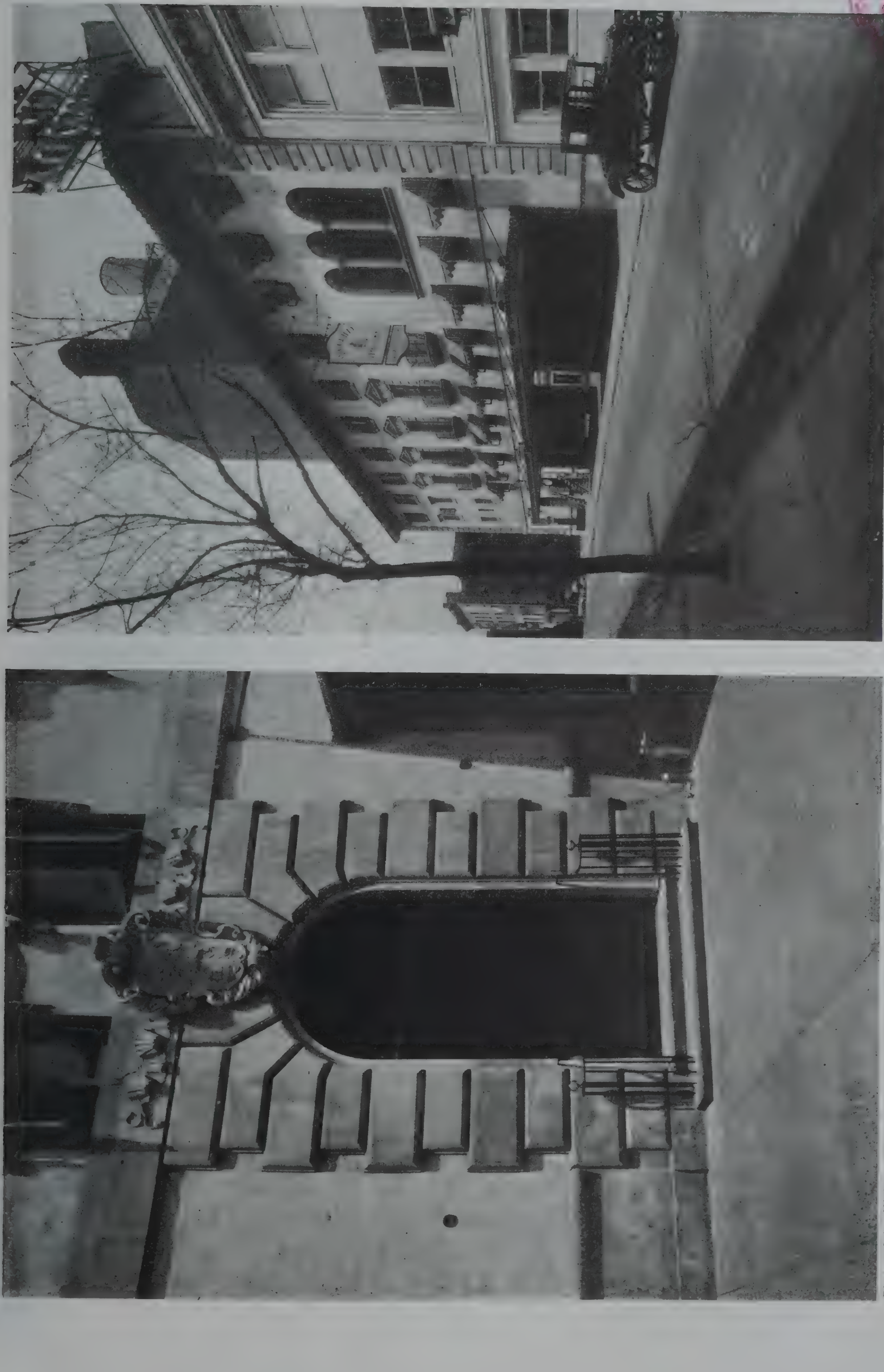
One Turning of the Stairs

upholstered in tapestry of brown and gold, with touches of red. Large antique tapestries of allegorical design provide the necessary decorative treatment to break the long expanse of the side walls. Above the orchestra, well to the rear, a deep balcony extends back over the main stair hall. Wrought iron railings protect the stairs and cross aisles of this balcony, which is supplied with individual exits and stairways leading to the street. At one side of the orchestra is located an attractive, long, narrow room, overlooking Fifty-second Street. This room, with its Italian fireplace, and five tall casement windows opening onto iron-railed balconies, is furnished most attractively in Italian style with couches, easy chairs, tables, bookcases, lamps and antique cabinets for the use of the members of the Theater Guild as a club room and library. A kitchenette and serving pantry connect with this club room for use when receptions and entertainments are given by the members. Above and below this attractive club room are floors and mezzanine, divided into rooms for the use of the various officers, departments and the Guild School of Acting. Above the auditorium itself, on the roof of the theater building, are located a number of rooms or studios to be used for rehearsals, scenery painting, costume designing, sewing and repair work and wardrobe storage. The stage itself is probably the most perfectly designed and equipped in this country. It has a cyclorama which is 65 feet high and which clears the stage by 24 feet when raised into the gridiron tower, or upper part of the stage. A switchboard, operated by a single master switch, controls 156 dimmer plates and 200 switches. Twelve spotlights in the auditorium are also controlled from this same switchboard. The footlights can be lowered so as to be out of sight when not in use. The entire stage is completely trapped, so that anything in the way of stage mechanism can be accomplished. The settings are hung and shifted by a counterweight system, worked from the stage. This system and the size of the stage tower, which is nearly 90 feet in height, and the height of the gridiron, allow scenery for several productions to be housed at one time, and used when required.

The exterior design of the building is in entire keeping with the interior, showing as it does a simple street facade in the style of the Florentine Renaissance. The window openings are carefully studied and picturesquely grouped in an informal manner to give quaintness and charm to the exterior design. An open arcaded loggia pleasantly breaks the wall at one end of the facade, producing a recess of deep shadow which in a way balances the shadows produced by the entrance doors themselves and the long projecting marquee. The exterior of the "gridiron," usually of distressing ugliness, has here been made a detail of architectural dignity. The entrance door to the stair hall with an elevator, leading to the office and school of the Guild shows a dignified Florentine architectural treatment suggesting a guild house in Italy, where the guilds flourished during the glorious and invigorating days of the Renaissance.



Auditorium, Guild Theater, New York
C. Howard Crane, Kenneth Franzheim and Charles Hunter Bettis, Architects

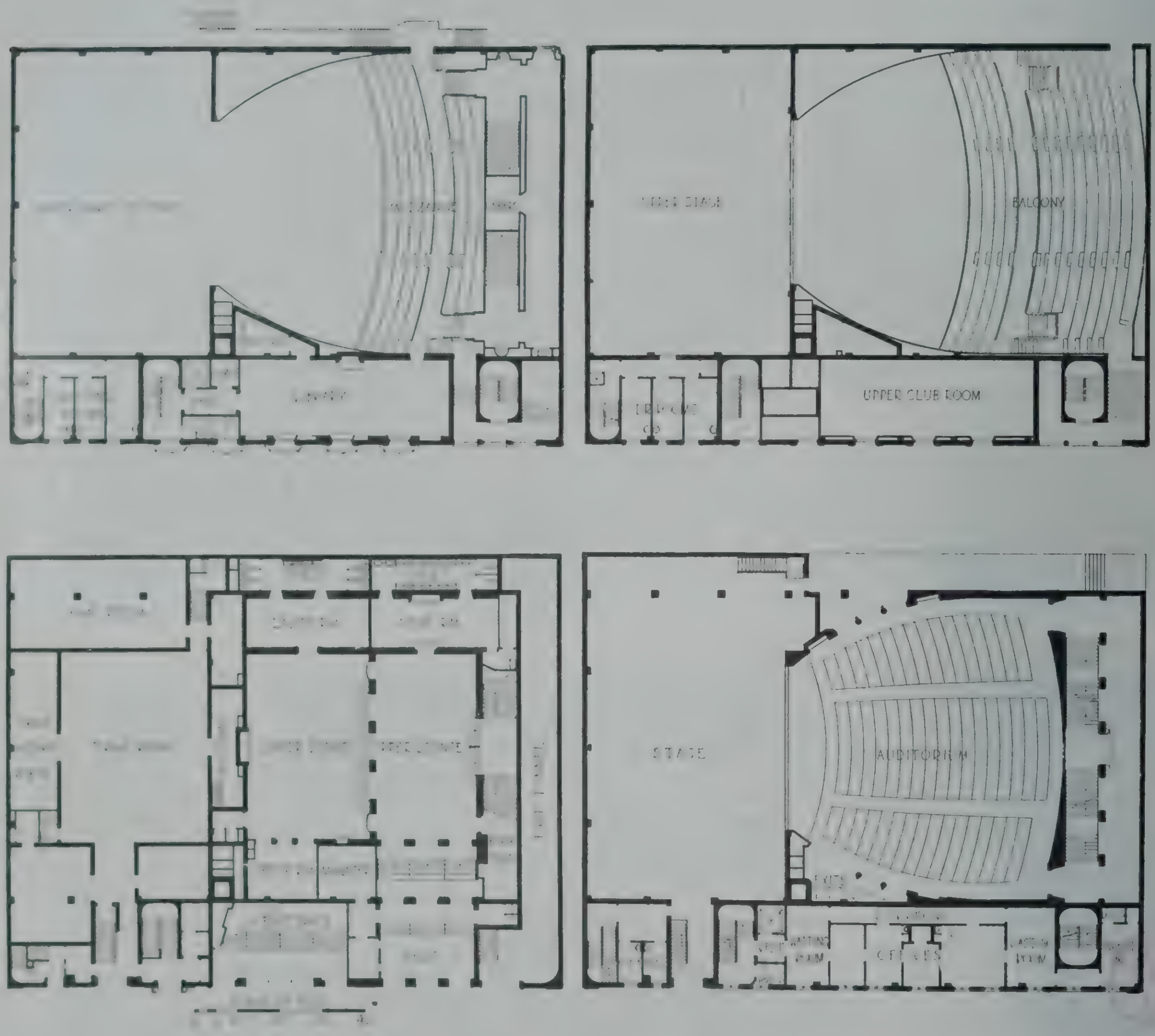


Photos, John Wallace Gillies

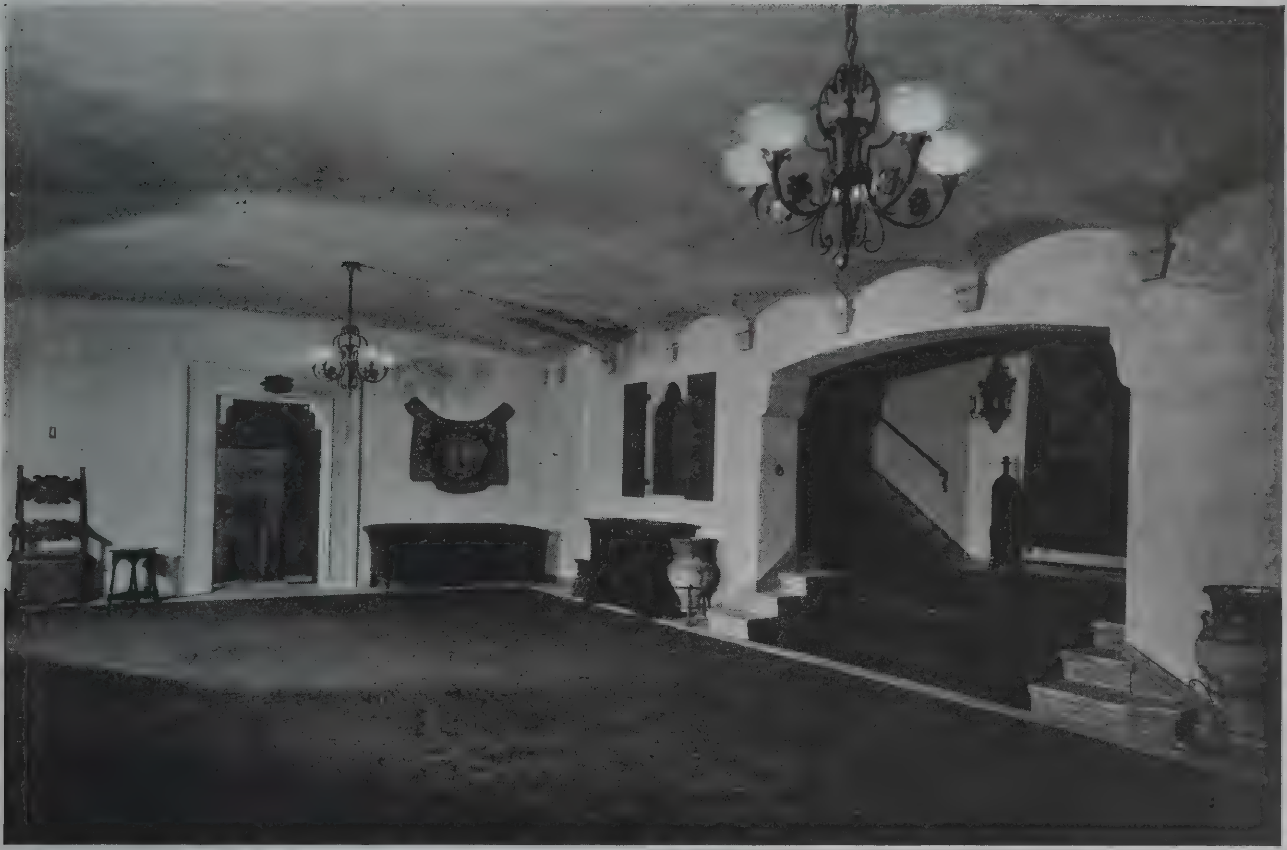
(Plans on Back)

THE GUILD THEATER, NEW YORK

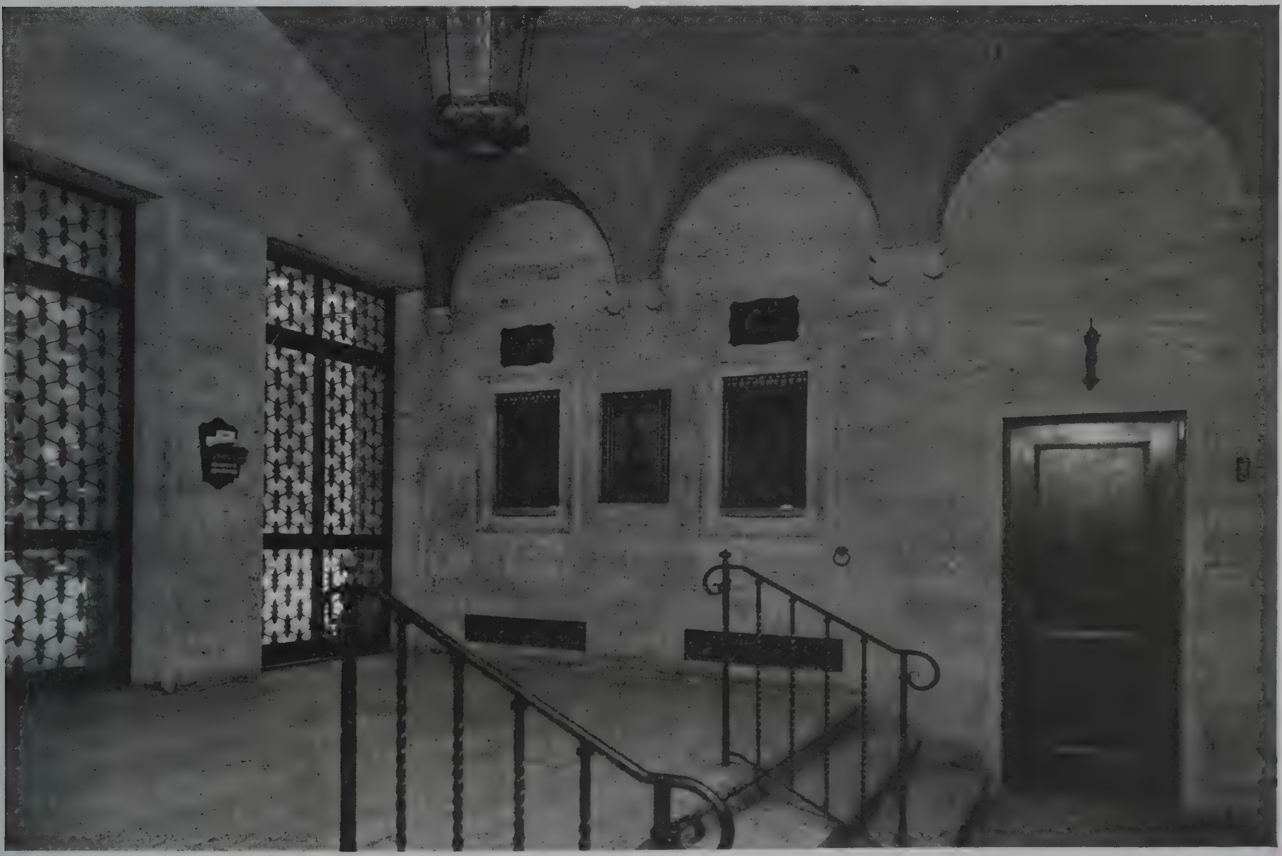
C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS



PLANS, THE GUILD THEATER, NEW YORK
C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS



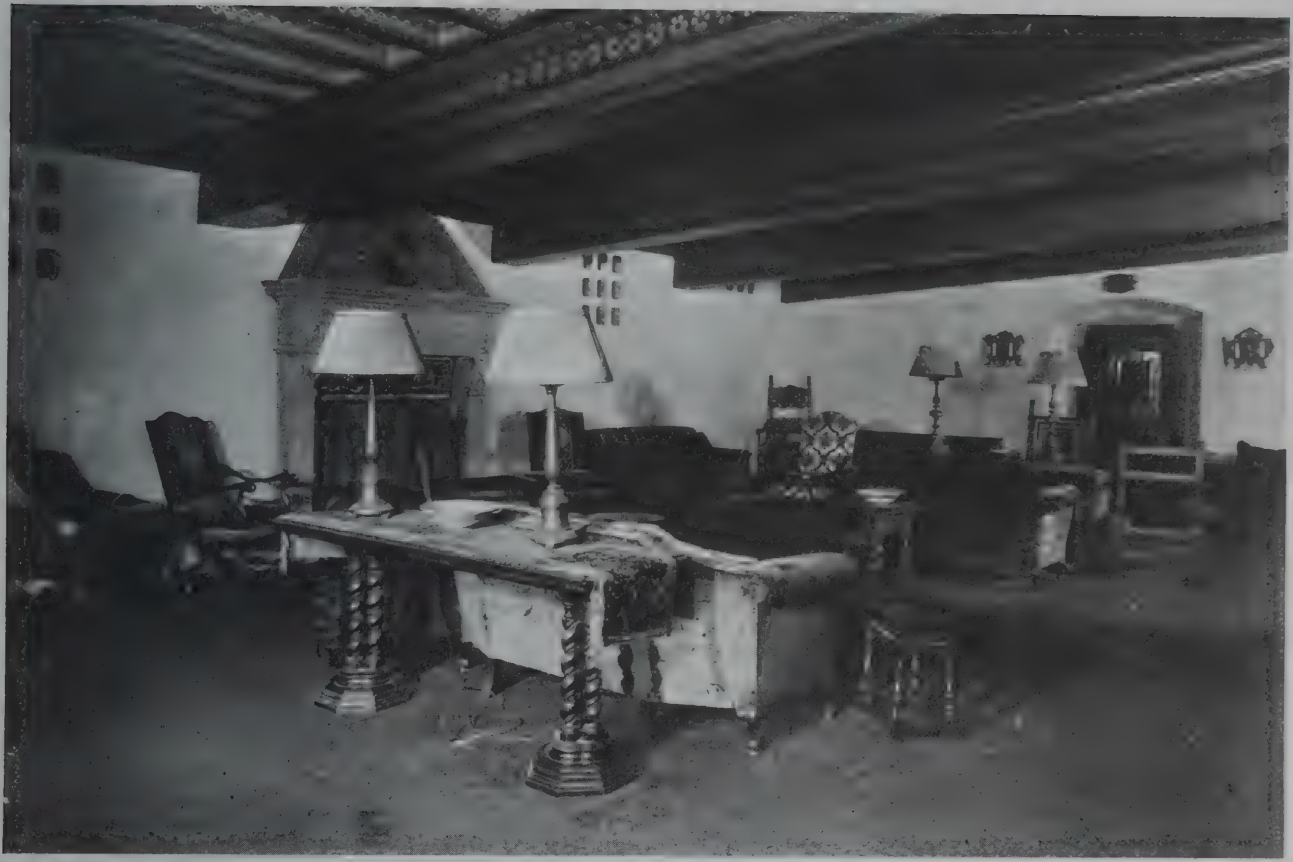
THE MAIN STAIRWAY LEADS OUT OF THE UPPER LOUNGE



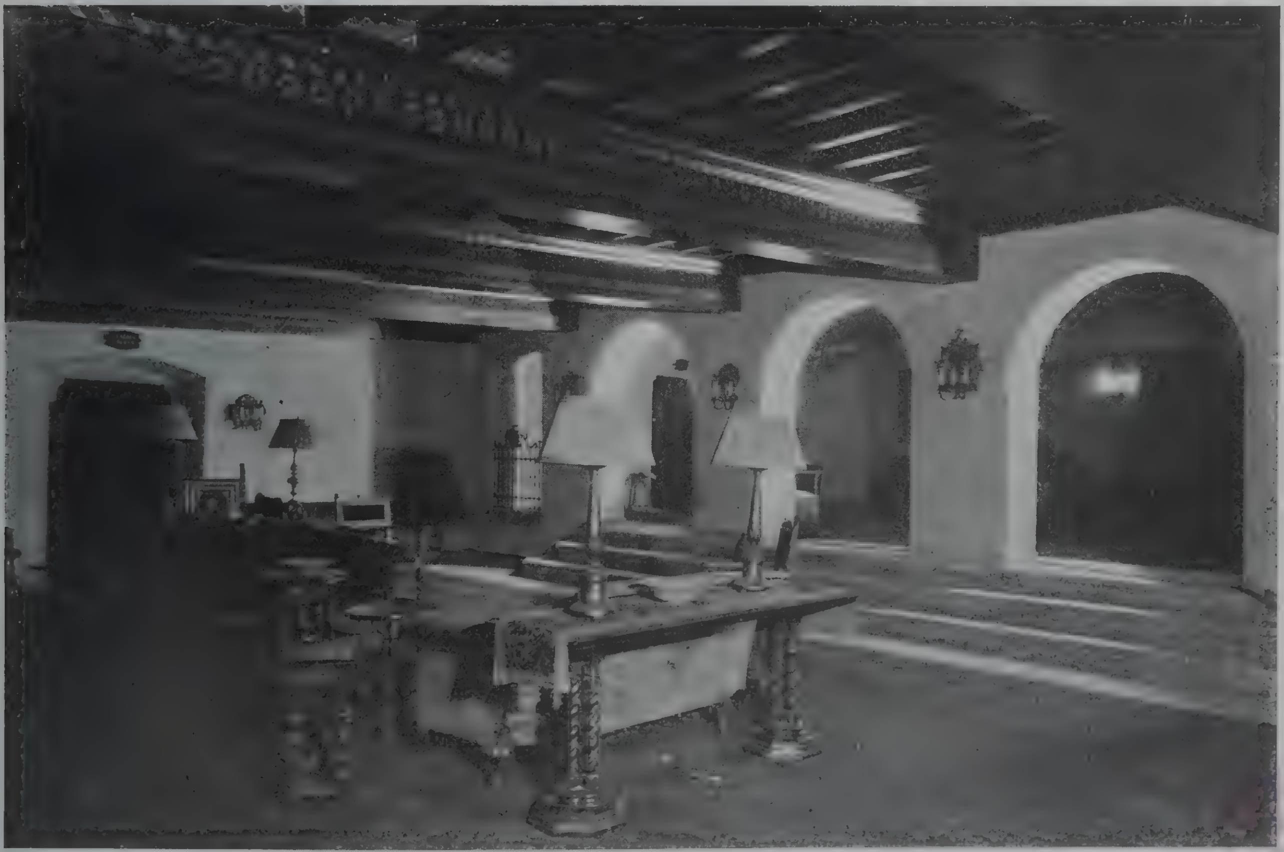
ENTRANCE LOBBY SHOWING DOORS AND TICKET WINDOWS

THE GUILD THEATER, NEW YORK

C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS



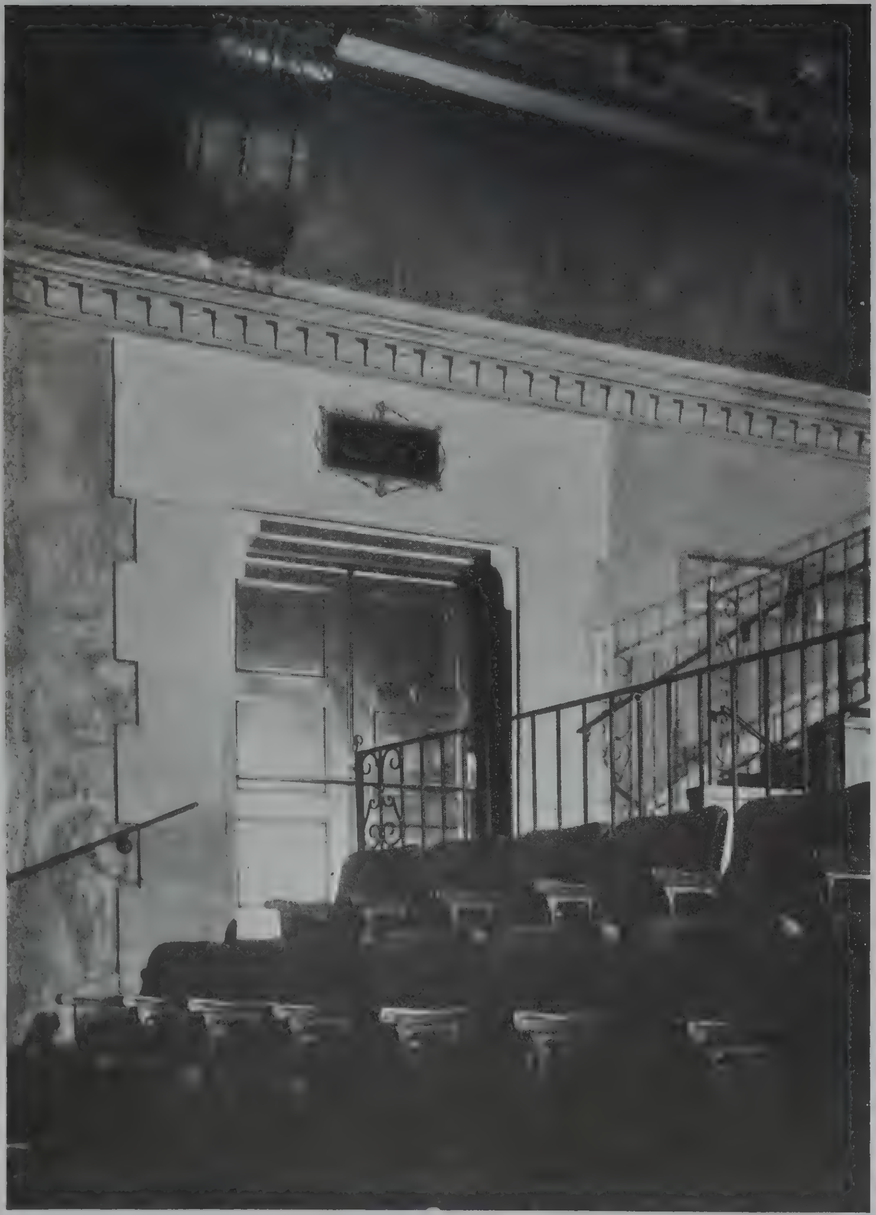
FURNISHING OF LOWER LOUNGE, HOMELIKE AND APPROPRIATE IN CHARACTER



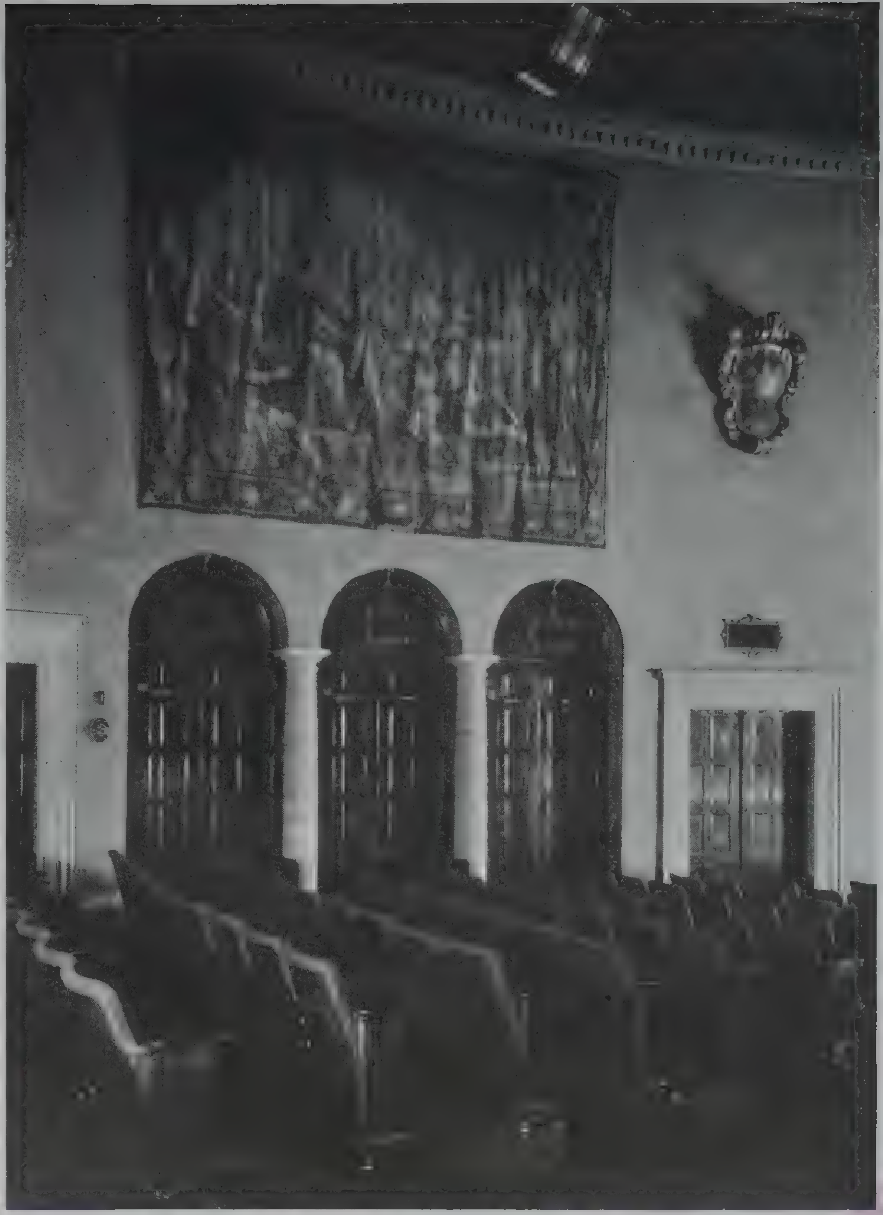
LOW STEPS LEAD THROUGH ARCHES FROM LOWER TO UPPER LOUNGE

THE GUILD THEATER, NEW YORK

C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS



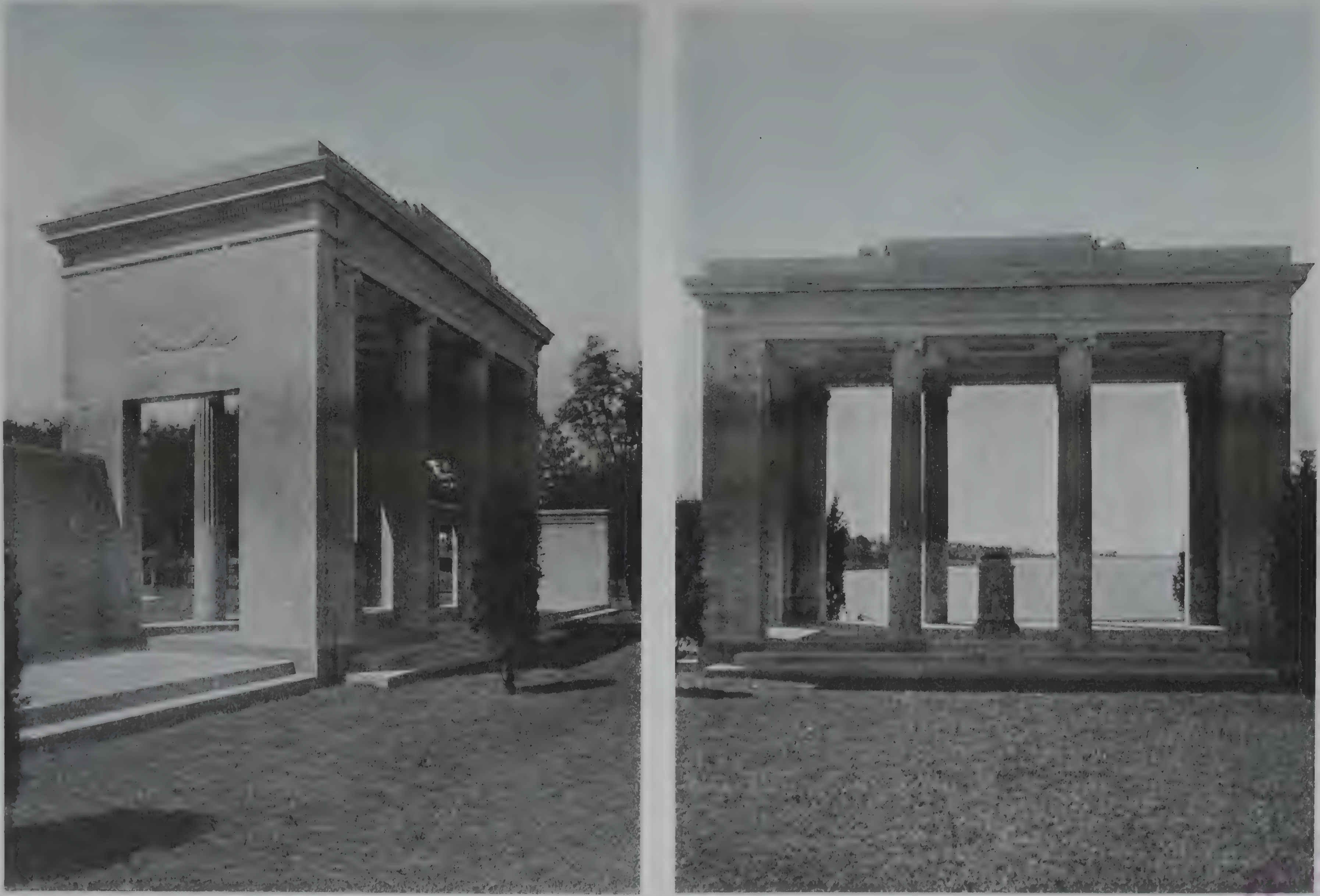
DETAIL OF A BALCONY EXIT



DOORS LEADING TO STREET EXITS

THE GUILD THEATER, NEW YORK

C. HOWARD CRANE, KENNETH FRANZHEIM, AND CHARLES HUNTER BETTIS, ARCHITECTS



Photos. Drix Duryea

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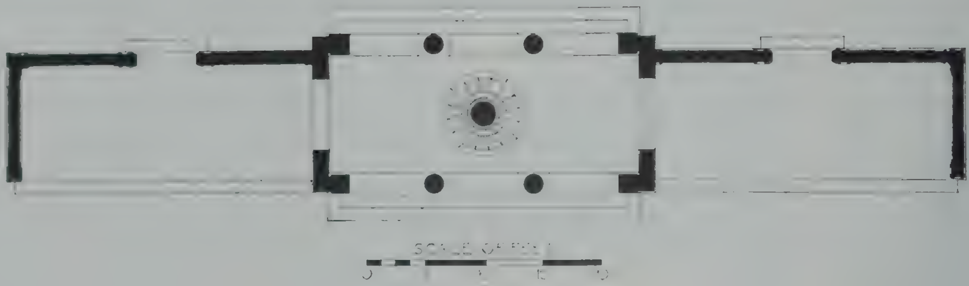
WAR MEMORIAL, SOUTHAMPTON, N. Y.
GOODWILLIE & MORAN, ARCHITECTS



PLAN, WAR MEMORIAL, SOUTHAMPTON, N. Y.

GOODWILLIE & MORAN, ARCHITECTS

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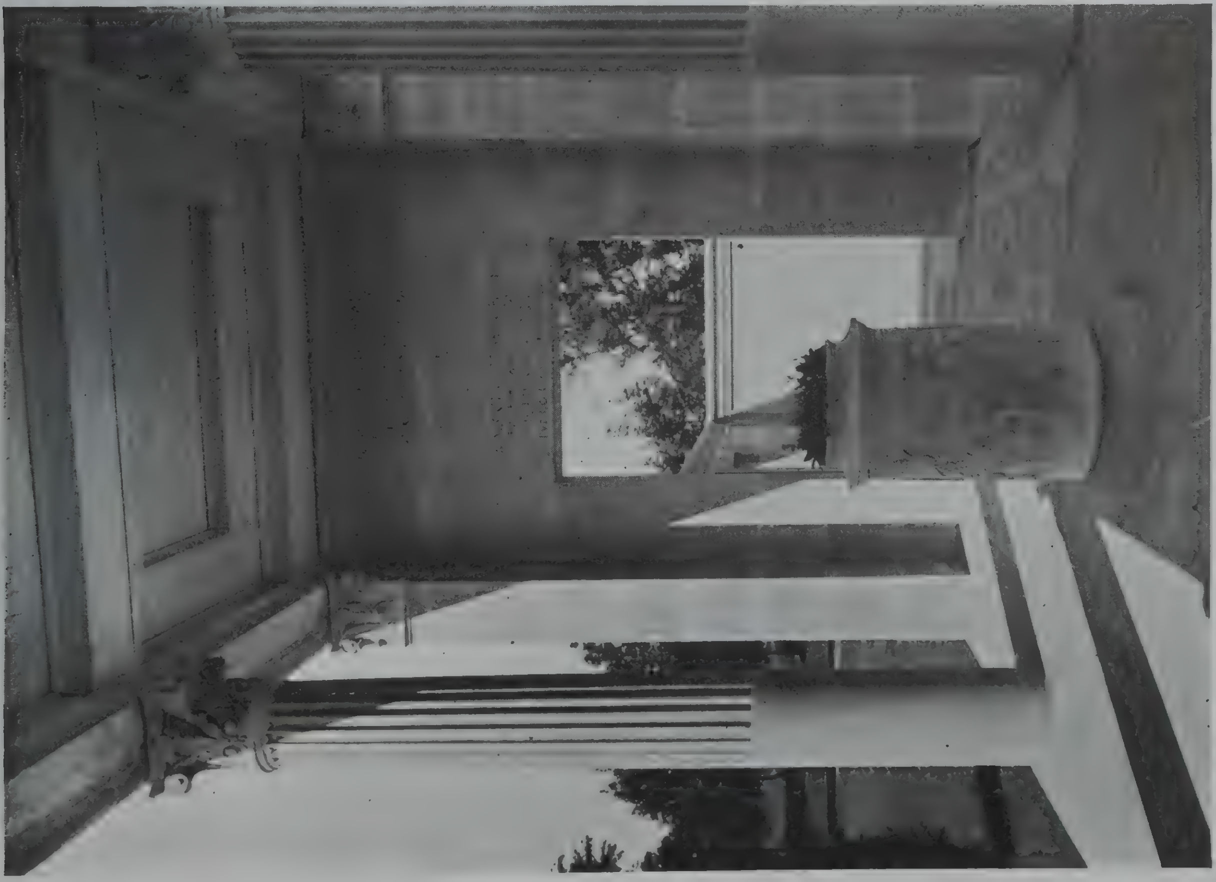
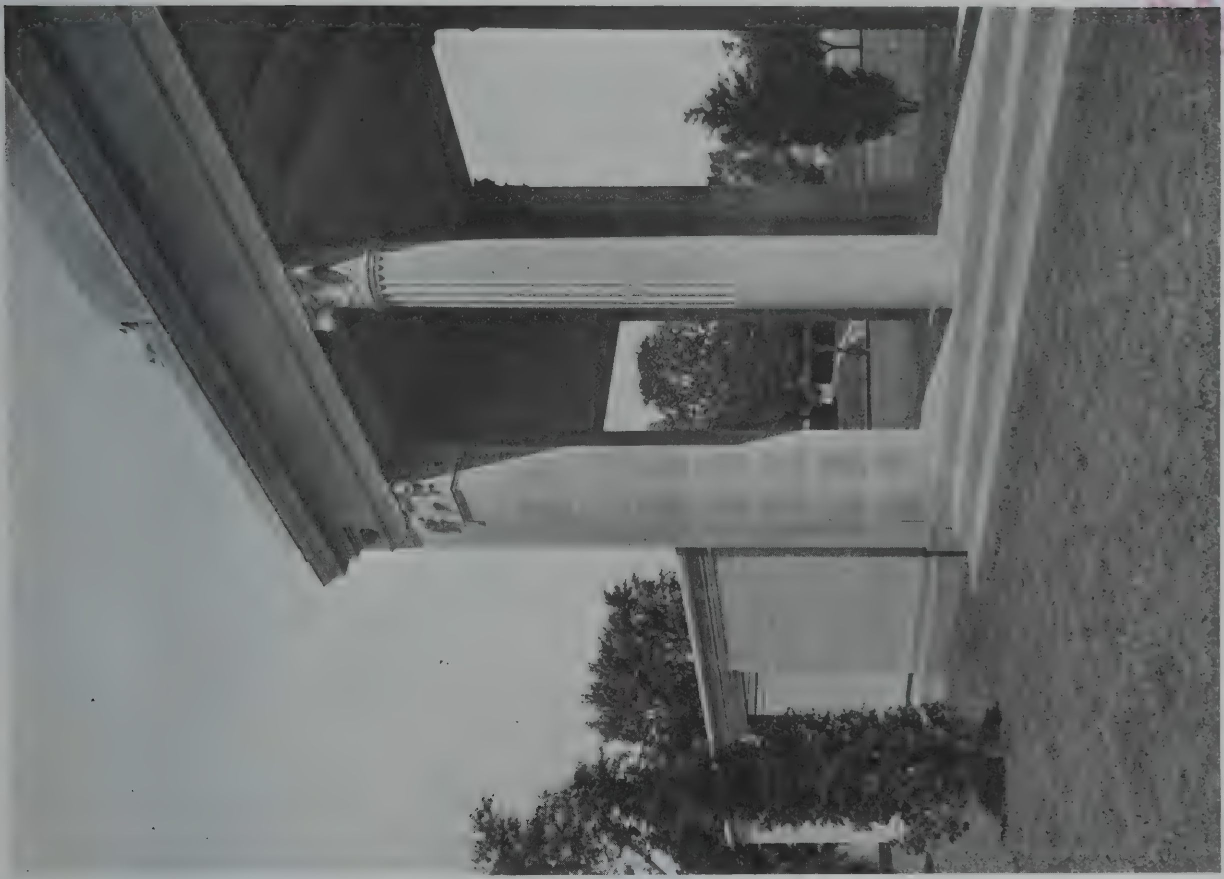
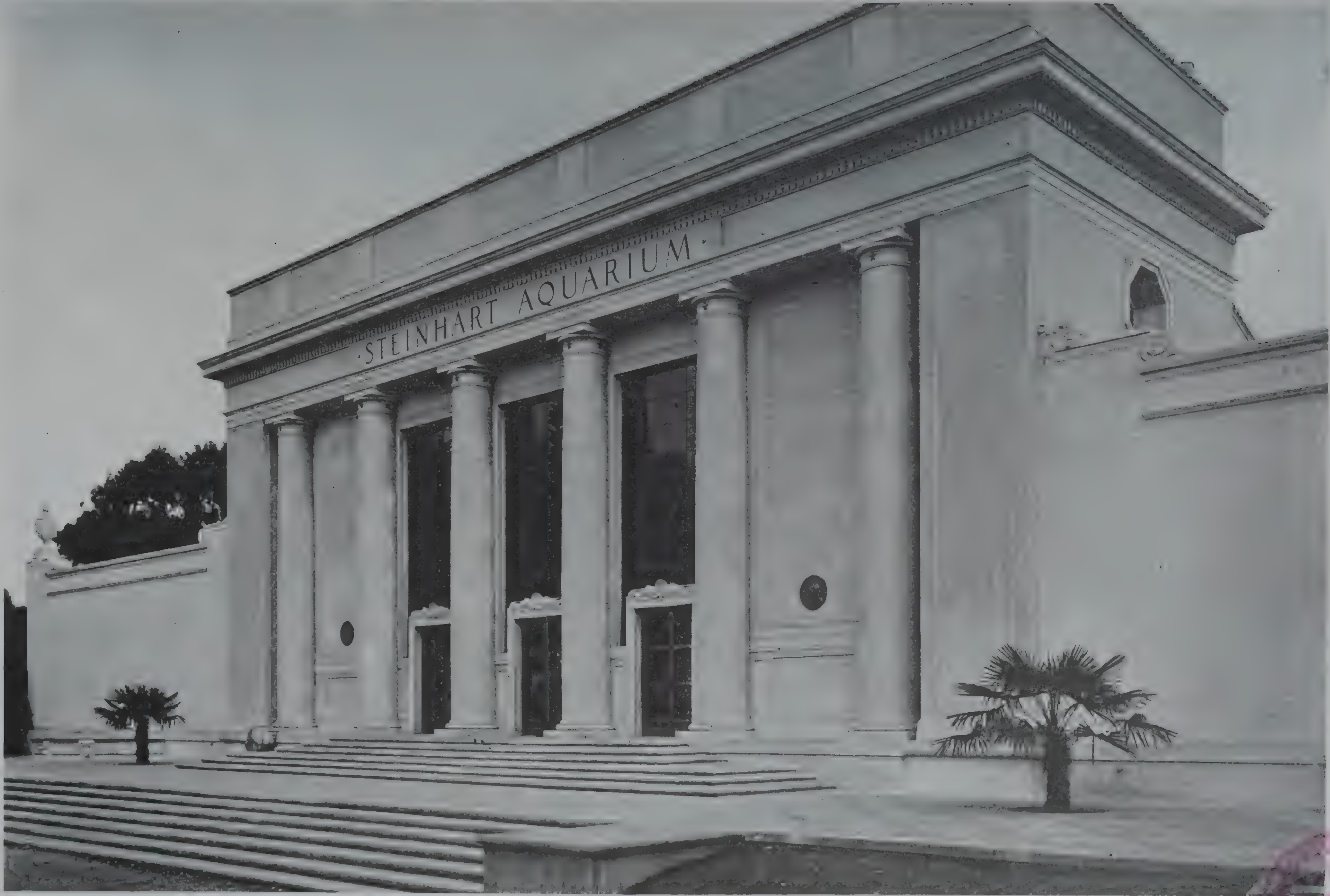




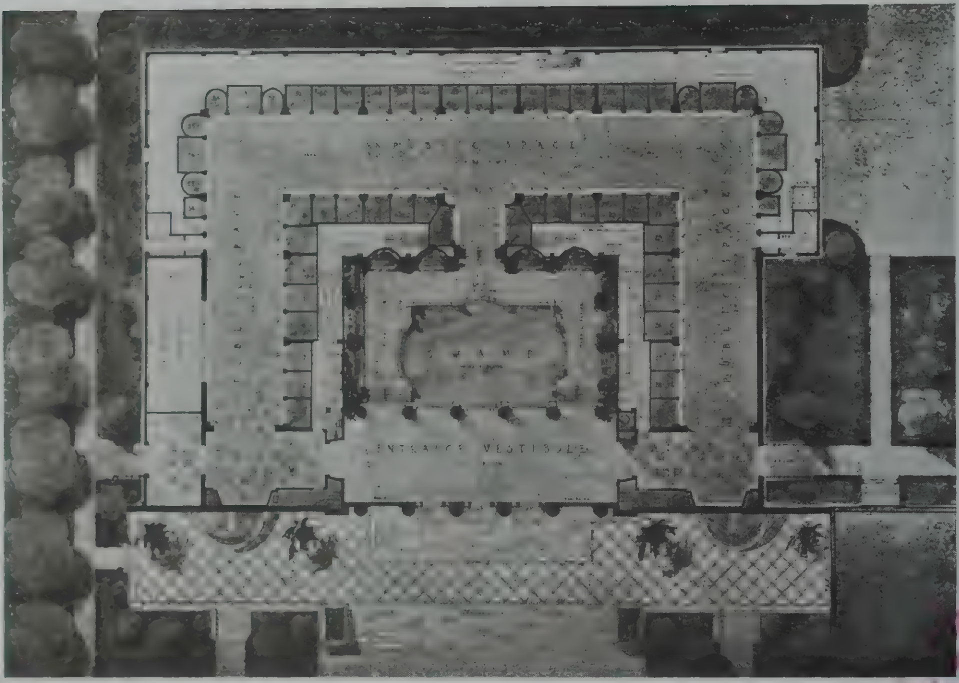
DETAILS, WAR MEMORIAL, SOUTHAMPTON, N. Y.
GOODWILLIE & MORAN, ARCHITECTS



Photos. Pacific Photo & Art Co.

(Plan on Back)

THE STEINHART AQUARIUM, SAN FRANCISCO
LEWIS P. HOBART, ARCHITECT



PLAN, THE STEINHART AQUARIUM, SAN FRANCISCO

LEWIS P. HOBART, ARCHITECT

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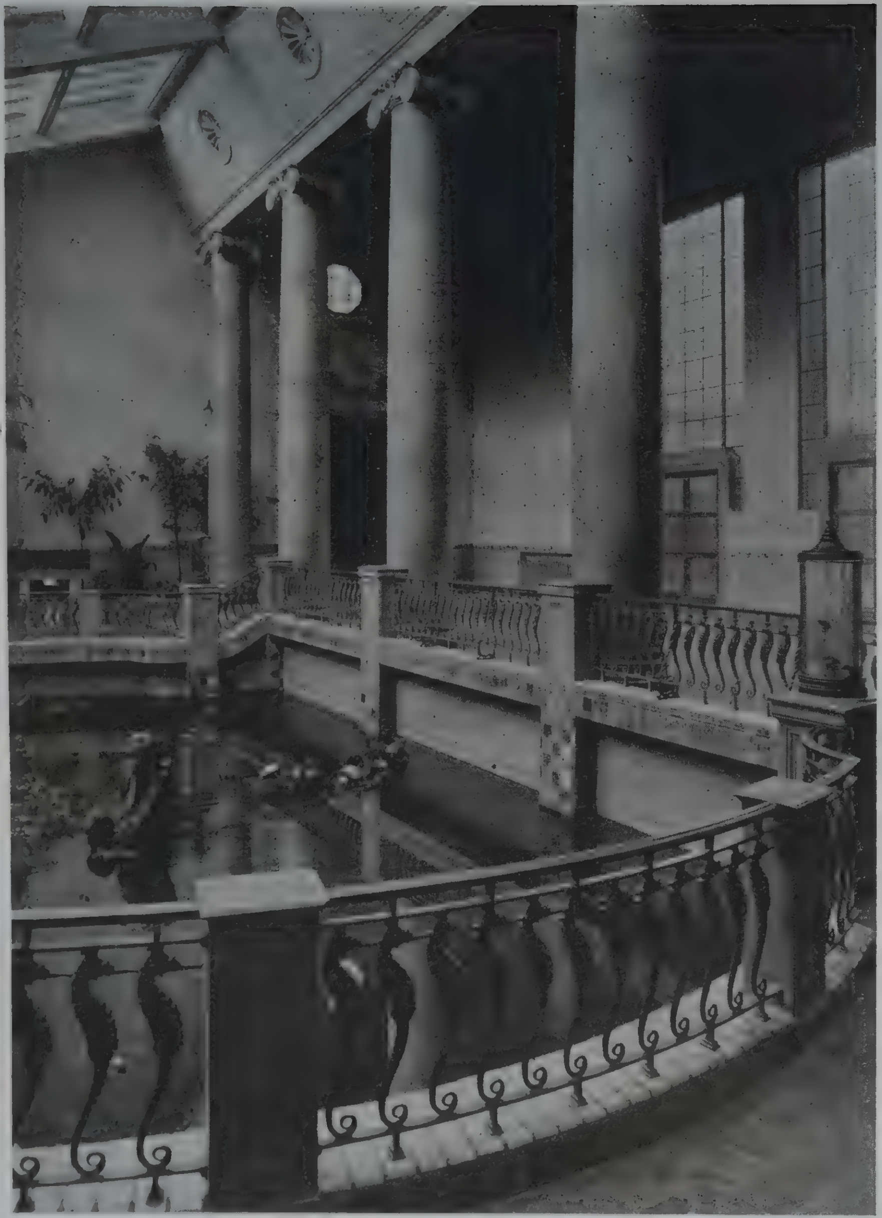
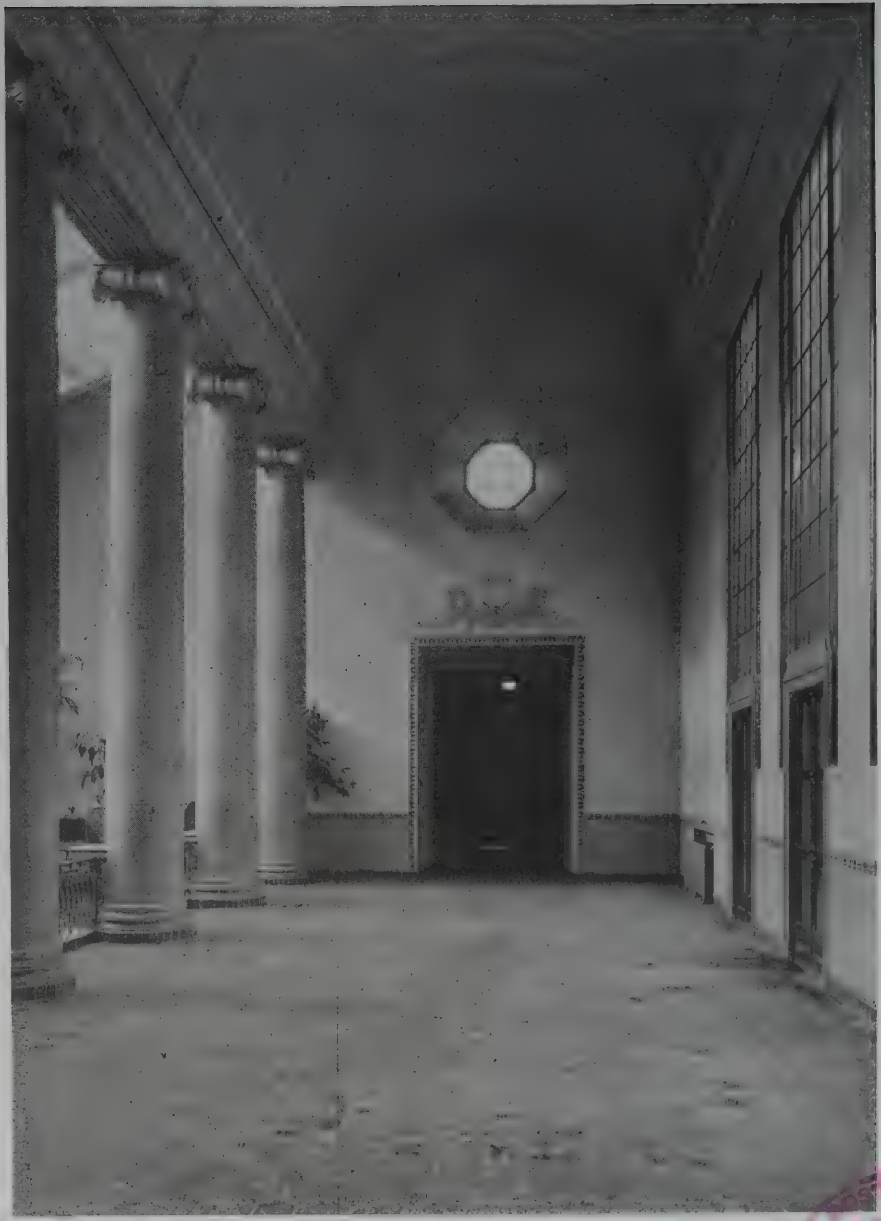


THE "SWAMP" ROOM



ENTRANCE VESTIBULE

THE STEINHART AQUARIUM, SAN FRANCISCO
LEWIS P. HOBART, ARCHITECT

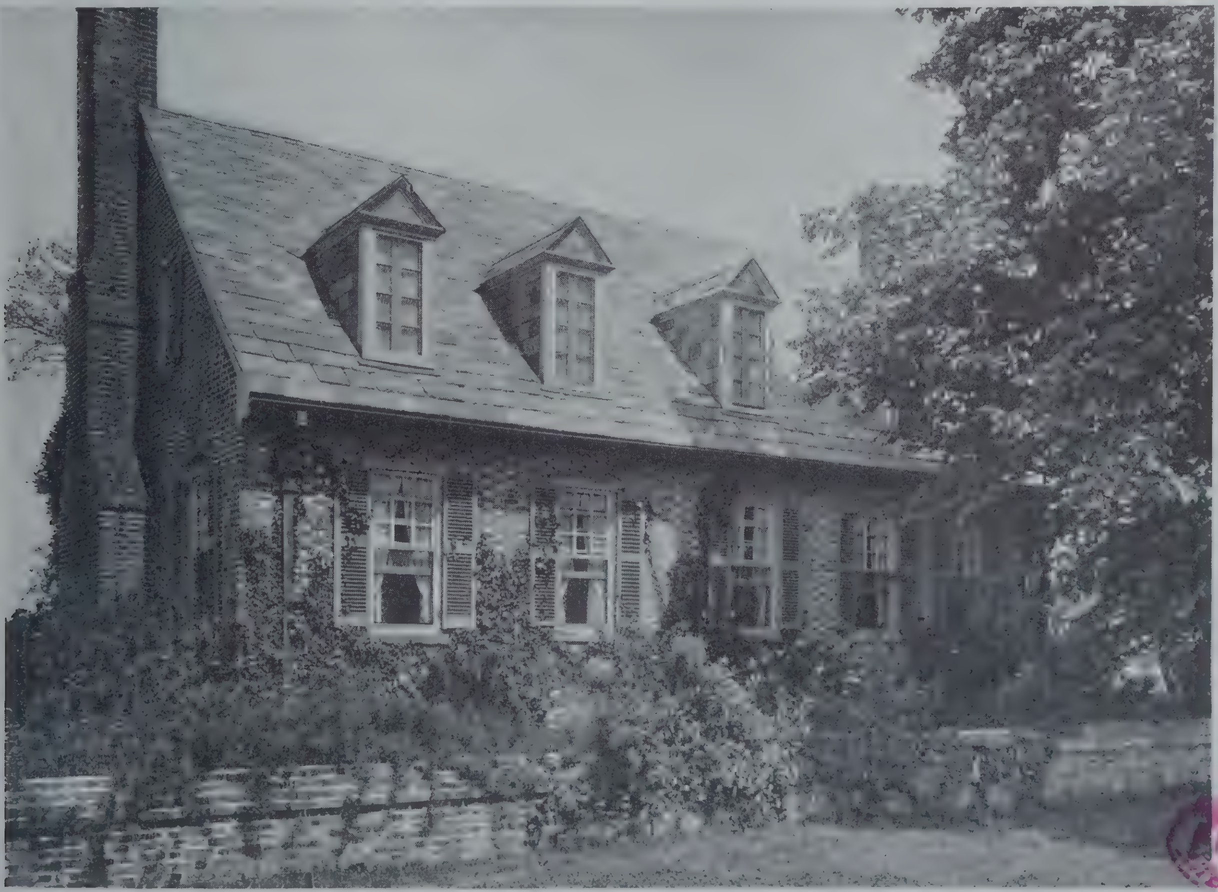
Planting in Relation to Architecture

By ELSA REHMANN, *Landscape Architect*

WHEN an architect friend of mine expressed the opinion that a house could be "made" by the planting against and around it, he was emphasizing a general truth. As he had no knowledge of plants, and took no horticultural interest in them, I realized that the statement came from a real appreciation, unconscious though it no doubt was, that planting has a very direct bearing upon the impressions we get of buildings.

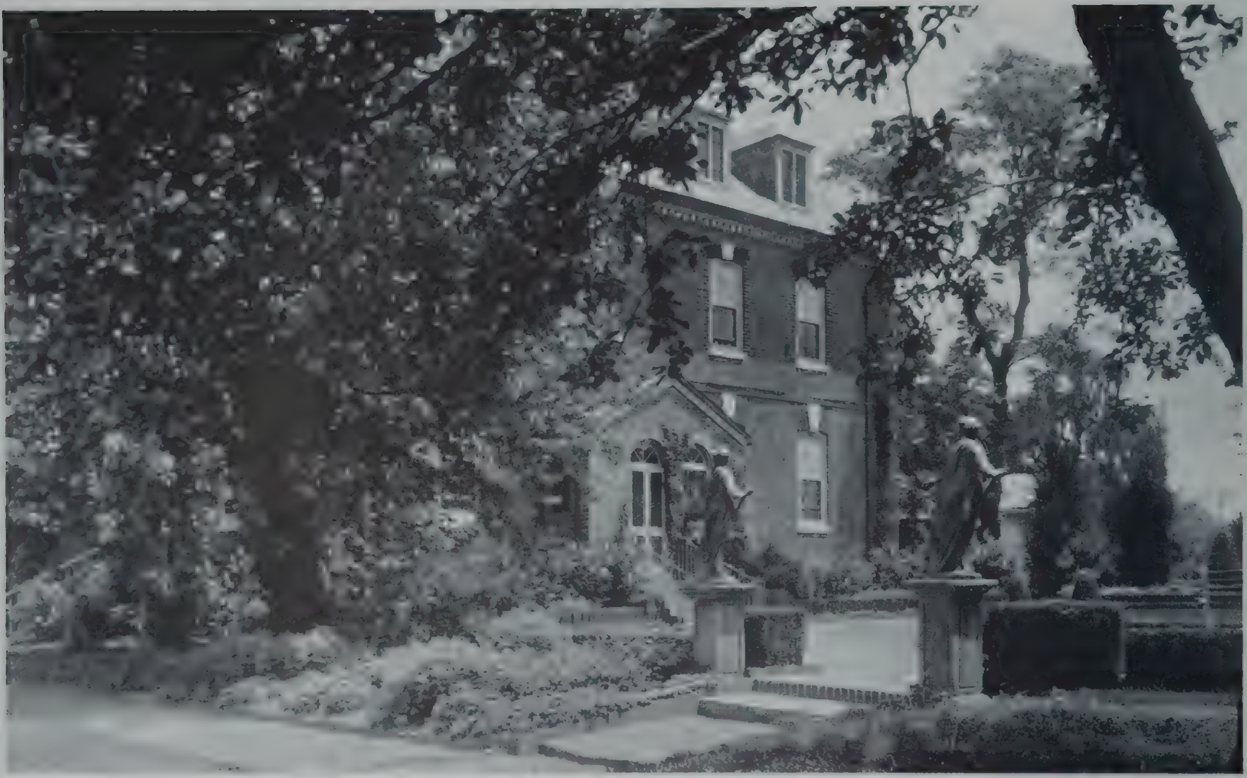
It is impossible, to be sure, for the architect to have a working knowledge of plants in their infinite variety. How is he to know the forms and structures, the foliage shapes and textures, the flower colors and fruiting effects of countless trees and shrubs, vines and flowers? It is a pity, however, that the architect's knowledge is usually limited to such definite forms as the columnar poplar, the pyramidal cedar and to the more artificial clipped evergreens, when there are such hosts of fascinating plant forms of picturesque beauty. This fact was very forceably impressed upon me some years ago when I marveled at the Japanese effect of one of the *retinosporæ,* for, accustomed to its clipped aspect demanded at the time by many architects, I had never before seen it in its natural form. It might be interesting and worth while for the architect to be conscious of the decorative and "sculptural" qualities of plants and of their value in making a setting for his buildings. This is a matter of line, form and color, and appreciation of it should not be difficult for an architect who values the subtlety of roof lines and window groupings, of column proportions and cornice mouldings, and other similar niceties.

The problem of the landscape architect begins at the very house walls and extends to the boundaries of the property; even farther, at times, since the setting of woods and fields, of hills and valleys, of streams and lakes may afford interesting contributions. In all this work, the house is the nucleus about which he builds. Take the planting against the house walls. This involves a problem that is really more difficult than most people suppose, because few realize that planting against the house walls does not exist for its own sake but is only good if it is adapted to the material of the house and if it can adjust itself to window groups and wall spaces. There is a certain nicety in establishing the



Shrubs and Vines Soften Architectural Lines and Contrast Well with Wall Materials

Griffin & Wynkoop, Architects



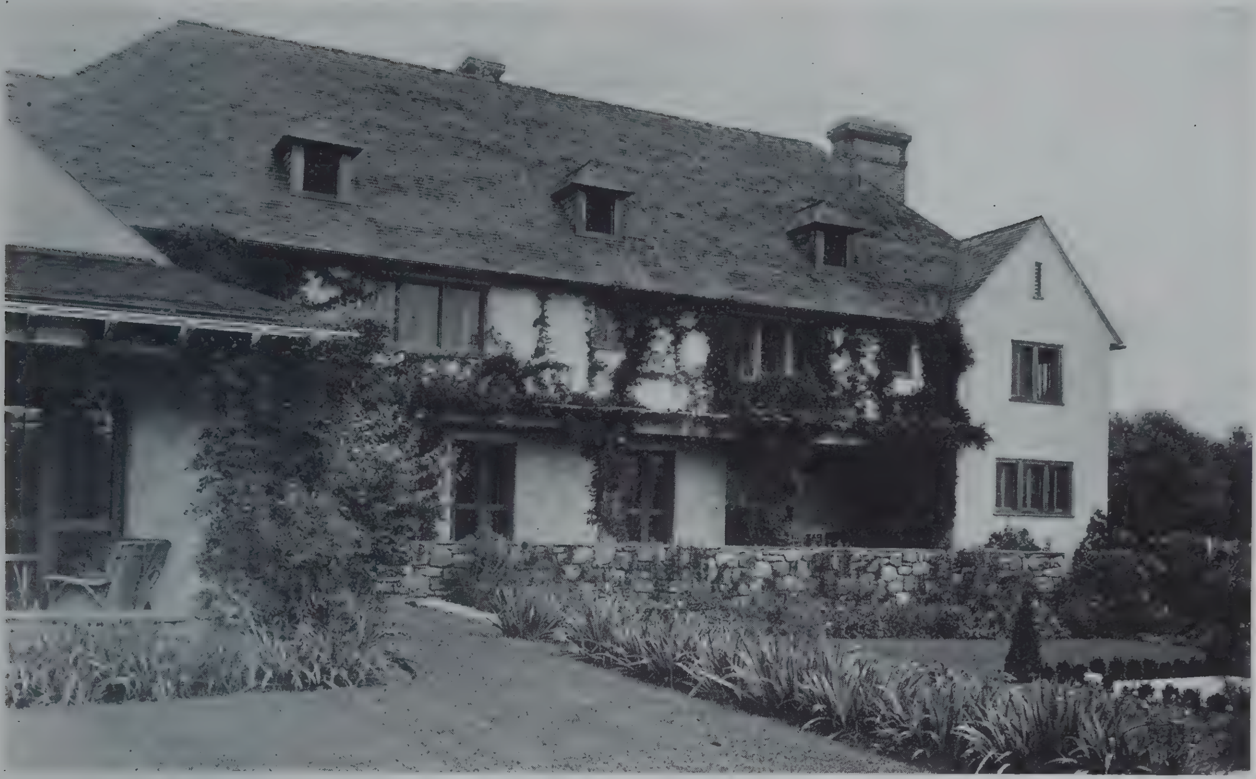
The Restraint and Dignity of the Planting Are in Harmony with the Formal Design of This House
Griffin & Wynkoop, Architects

proper relations between the house and its planting. There is a definite rhythm to be sought in the undulating lines of foliage as it dips to the ground under windows and rises to tree heights at blank wall spaces. There is a certain refinement in the regard that planting can have for symmetrical facades, just as there is a certain freedom desirable for the planting against those which are unsymmetrical.

Not long ago I had the opportunity of making planting plans for eight houses that were being built on the same street, all within a block or two of one another. It was particularly interesting, since it brought together all the various problems that can confront one in such planting. To frame an important window group with cedars; to bring out the beauty of gray stone walls by the glossy green of swamp magnolias; to emphasize a bay with spreading yews; to frame a Colonial doorway with lilacs; to take advantage of an unsymmetrical facade by balancing a columnar cedar with a horizontally spreading dogwood,—these are only a few details to show the intricacy of such a delightful task.

Planting against a house wall can be more than a decorative asset. It can be of real structural importance. There are ways in which planting can give a doorway its rightful emphasis. There are ways in which planting can pick out and emphasize a gable end or subordinate an auxiliary wing. The heavy planting used so frequently to hide kitchens or service wings has so often puzzled me. This is likely to overweigh the rest of the planting. By its very bulk it is likely to draw attention to that which it is supposed to conceal. It has always been a question in my mind whether the architect is at fault in giving less attention to the attractiveness of such wings or whether the landscape architect is at fault in trying to hide an obvious and necessary part of a building. In the most successful instances, however, the planting is so carefully arranged that the attention is centered on the main part of the building, and the planting about the wings places them in their proper subordination.

When rightly considered the house is always of paramount importance, and the planting adapts itself to it. Although this might seem to be absolutely obvious, there are many evidences to the contrary. How is one to forgive the planting that has so little regard for the importance of windows that it carelessly blindfolds them, as though windows were not an architectural asset of houses as well as a source of light to rooms? How is one to overlook the planting that, like a heterogeneous collection of evergreens, can set a calm and dignified house into a quiver of restlessness? How is one to forgive the overzealousness of planting that extends itself in copious abundance around a house, when a few shrubs might supply sufficient decoration? Curiously enough, even the ungainly houses of two or three decades ago, the houses whose high cellar walls were hidden beneath wide porches and behind trellises, resent this overdose of planting. I had to solve such a problem a few years ago, and I found that a sufficient use of vines to make an inconspicuous



The Vines on This House Soften Its Lines and Tie It in with the Adjacent Garden
Peabody, Wilson & Brown, Architects

green tracery against the trellis, to blur the balustrades and to wreathe the banisters, put the house into the friendliest agreement with the setting.

Vines form an interesting department of vegetation. Few realize, I suppose, what a rich assortment of vines there is for the decoration of house walls. There are vines that seem particularly adapted to every structural requirement. There are vines to cover brick foundations, to tumble over porch walls, to twine around porch columns. There are vines to decorate the copings of steps, to clamber up chimneys, to cling to rough wall surfaces, and others to climb over the very roof itself. There is little fear that there will be an over-use of vines, but it is unfortunate that sometimes vines should be permitted to stray into forbidden places, to cover an entire window, perhaps, or to conceal the roof of an entrance porch to the real detriment, if not the ruin, of its architectural significance.

There is something rather subtle about this problem of planting against house walls, because the planting should interpret the character of the house. The very traditions of the house, let us say its historical background, come into play. The contrast between the rather austere Colonial and the quaint English cottage may illustrate the point; the one is rather shy of planting against its white painted clapboards, while the other welcomes quite happily the shrubs and flowers that grow close against its stone walls and clamber up its chimney and over its roof.

What we might call the "social" aspect of the house has a bearing upon the planting against it. The farmhouse, with old fashioned roses, peonies and chrysanthemums in careless tangles against the walls, is as happy in its way as the brick mansion appropriately framed in expensive and carefully placed box and holly, cedar and hemlock. There is something about any house, about its roof lines, about what we might call its bulk, about its very style, that should influence the planting against it. Two examples come to mind. Possibly they are particularly interesting by way of contrast, because they have the same social aspect, and because the planting against them is for the most part evergreen. The one is a large stone house, standing castle-like upon a hilltop in frank imitation of a French chateau. Dark yews are planted in great wide masses against the walls; an *actinidia* vine, that looks almost evergreen with its ample, glossy foliage, clambers up a corner; a hawthorn flanks a gateway; several cedars stand guard beside the doorway, and a hemlock fills a congenial corner by a windowless wall space. This planting accentuates the very ruggedness of the house. The other house, in the vicinity of Philadelphia, is of an English type, with a long, irregular plan, a series of mullioned windows, and a many-gabled roof. Here the planting reflects the refinement of its form and its beautiful details. All along the front of the house there extends hedging of clipped box with a few unclipped box plants in a corner. Such uniformity in planting gives the house a fine reserve. Added to this dominant effect are honeysuckle, ivy and *euonymus* creeping up the stucco walls; a pink hybrid tea rose reaches the second story window, climbing out the rough stone, and *pachysandra* and Christmas roses make a charming edging for the box. It is the mingling of dignified box and the more spontaneous planting that interprets so charmingly the character of the house.

There is, however, another important reason for the real effectiveness of planting in connection with a house. This depends upon its coördination with the planting around it. The two examples of planting just mentioned bring out some interesting details of this coördination. The planting against the large stone house is so effective because it is the culmination of the planting that borders a long, winding drive up a hill. Tangled growths of roses and *hypericums* and elders with their lighter foliage are planted along the drive in the open. This planting gives way to darker foliaged plants, such as dogwoods and viburnums where the wooded areas begin, and these give way in their turn to still heavier planting against the house walls, the walls being strong enough to bear it. This type of planting would utterly destroy the effectiveness of a less rugged house in a less exposed situation. In some instances one must go to quite the opposite extreme, for only by the most careful assembling of the finest types of plants will one be able to express the refinement of the house.

When we consider the planting against the house wall from this angle, it is like a "close up" in a motion picture. We seldom get these close ups. We begin to see the house from some little distance. We may admire the way a large tree spreads its branches across the face of the house. We may look at the house from across the street, and admire the glimpses we get of it over hedges and boundary planting. We may look at the house down a garden path and find that the flowers have an enlivening effect upon the building as seen from a distance.

Many people complain of the bareness of their houses, and make the mistake of trying to solve their problems by planting heavily against the house walls. It is the hedges, fences and walls *around* the house, the terraces and gardens, the overshadowing trees and the wooded background that make a house nestle into its setting. The planting against the house should help accentuate and develop the spirit of these surroundings. Since every house in its special location demands a distinctive setting, it would be idle to attempt to lay down specific rules for its development. It may be worth while, however, to suggest but a single example, useful because of its very simplicity. One can easily call to mind some fine old Colonial house in Salem, or perchance in Concord. Great gracefully arching elms tower over the house. There is a delightful interplay of light and shade in the branches and upon the house. It is, of course, not only the dignified house itself that makes for the effect, nor the great old trees; not only the picket fence with its attractive gateway, nor the lilacs against the house wall; not only the old fashioned garden nor the leafy background. It is really not any one of these separately that one notices, but rather the charm of the ensemble, and what is accomplished here it is possible to secure almost anywhere.

Flowering Shrubs and Vines Unite the House with the Garden

A Good Example of Harmony Between Foliage and Building Textures

The Smaller Civil Architecture of England

VI. THE MARKET HALL, TAUNTON, SOMERSET

By ROGER WEARNE RAMSDELL and HAROLD DONALDSON EBERLEIN

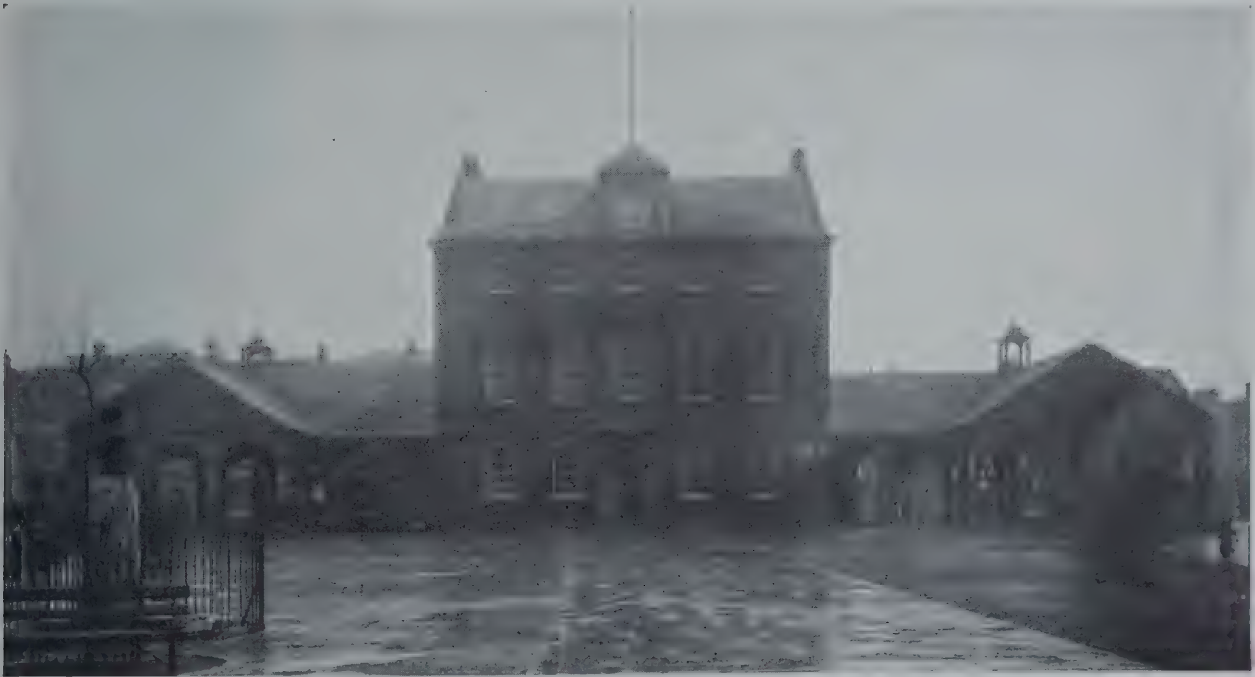
THE Market Hall at Taunton, the county town of Somerset, was built in 1772 from designs prepared by Coplestone Warre Bampfylde. Bampfylde was not an architect by profession, but a landscape painter. He was the only son of John Bampfylde, Member of Parliament for Devonshire, and came of a family that had long been prominent in the affairs of that county and that part of England.

Living himself at Hestercombe, near Taunton, he became closely identified with the interests of the county town of Somerset rather than with the concerns of Devonshire, and was sometime Colonel of the Somerset militia. Between 1763 and 1783 his pictures were hung in the exhibitions of the Society of Artists, the Free Society of Artists, and at the Royal Academy. Besides painting he also etched a number of plates, and he likewise made humorous designs of Christopher Anstey's "Election Ball," which was published at Bath in the year 1776.

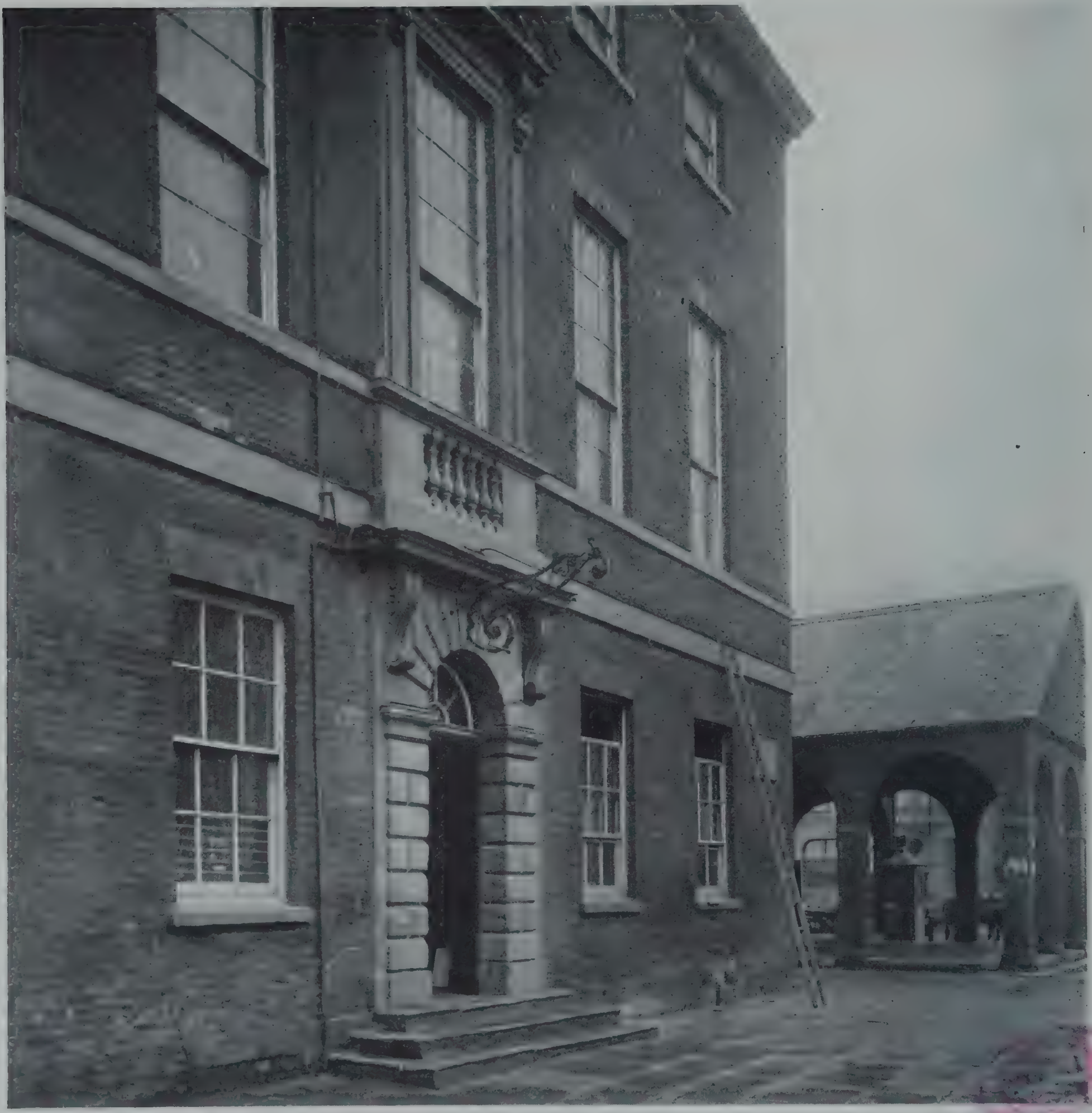
Whatever pedantries, affectations and constriction of style the meticulous Palladianism fostered by Lord Burlington and his group of purists may have been responsible for, it nevertheless accomplished one substantial result. It made architectural composition and the niceties of design a living issue; it created a standard of taste; it quickened architectural consciousness and sense of responsibility, and it caused the cultivated public to regard architecture not as a thing apart from daily life, a thing of complex technicalities, in which the people had neither part nor lot, a thing far above their heads that must be left wholly to professionals and about which it was little short of presumption for a layman to have an opinion, but rather as a matter of popular concern that affected everyone at all times as an issue of universal and vital interest. It encouraged the formation of intelligent and appreciative judgment of the art of building in every one of its many phases.

Eighteenth century Palladianism had its limitations, and it engendered a narrowness of outlook that condemned as "barbarous" every form of architectural expression not based upon Classic principles; its devotees were singularly blind to the merits of everything outside the pale of their chosen field. To them all Gothic forms were anathema, to say nothing of every other mode that accorded not with the Palladian. Nevertheless, this all-exacting, all-engrossing Palladianism accomplished so much good in the establishment of a general architectural sense that we can afford to overlook the restrictions it imposed upon breadth of appreciation.

When Bampfylde designed the Market Hall at Taunton the dominance of strict Palladianism had been somewhat mitigated by the influence of the style brought into vogue by the brothers Adam. Classicism was not less paramount in the popular conception of fitness, but it was a broader, more tolerant, more human Classicism that gave greater scope for individual interpretation and a wider field for ordered diversity in both composition and detail.



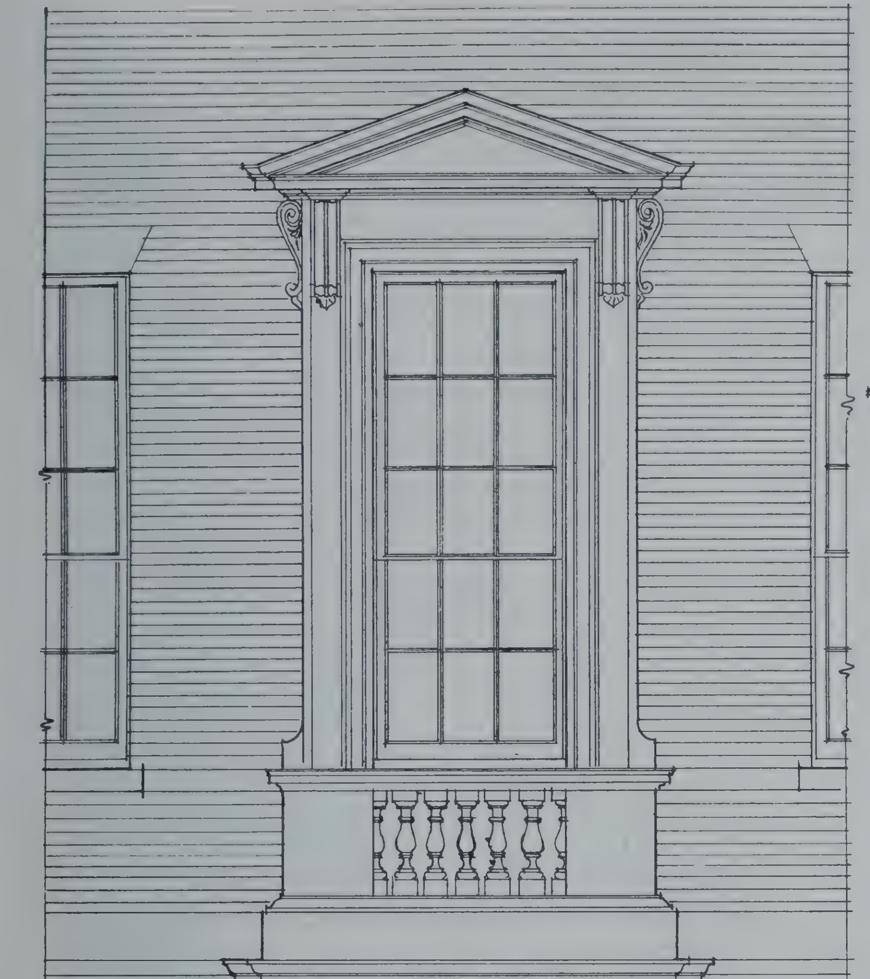
Front View, Market Hall, Taunton, Somerset



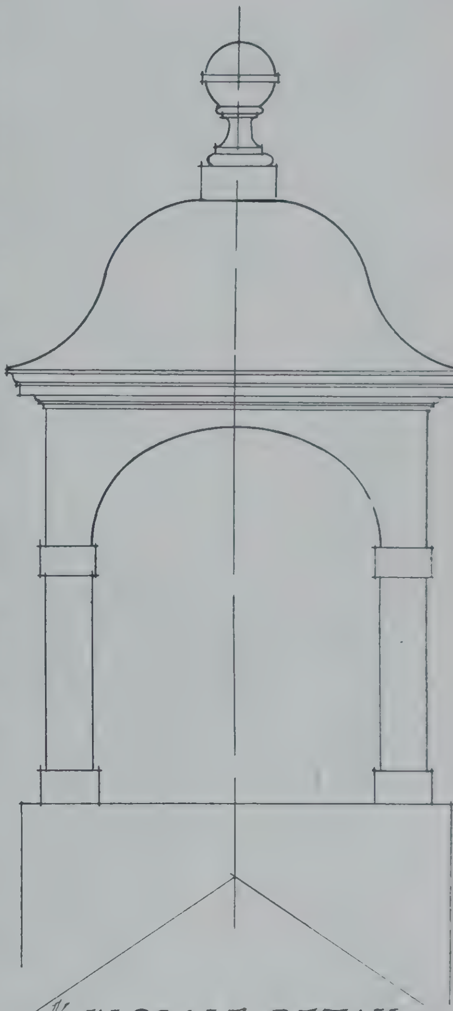
Detail, Front Entrance, Market Hall, Taunton, Somerset

It is unfortunate that no photographic record can show the Market Hall as it was when completed from Bampfylde's designs. One bay of each market hall, at the ends farthest from the central block, was demolished some years ago in order to widen the thoroughfares that converge in front of the plaza; and indeed the demolition of the entire structure was seriously contemplated at a time when architectural appreciation was at a low ebb. This danger has now happily been averted, and the Market Hall, the only piece of creditable civil architecture possessed by Taunton, with the exception of the old Assize Court and the Judge's Lodging in the Castle, has gained recognition as a monument well worthy of preservation. The destruction of the end bays of the market halls necessarily detracts from it.

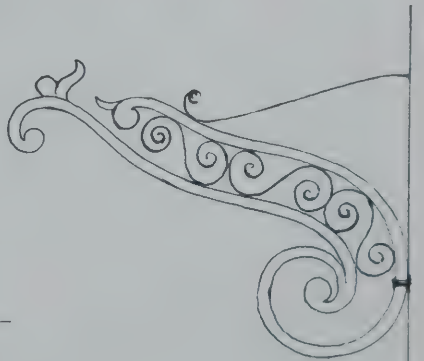
The building is of red brick with stone trim, and presents an aspect of impressive dignity. With the exception of the doorway, the window above it and the carved cresting enclosing the clock, there is little detail to speak of, and the structure owes its effect almost entirely to interest of composition, which is unusual and full of individuality. The breadth and simplicity of conception with which a civil problem was treated may well prove full of valuable suggestion for modern employment. In the central block the ground floor is devoted to offices and board rooms; the whole first floor is given over to a lofty assembly hall or ballroom with a gallery at one end, while in the attics are storerooms and quarters for the keeper and his family. The open arcades at the sides afford ample accommodation for the markets.



¼ IN. SCALE DETAIL
OF MAIN ENTRANCE.



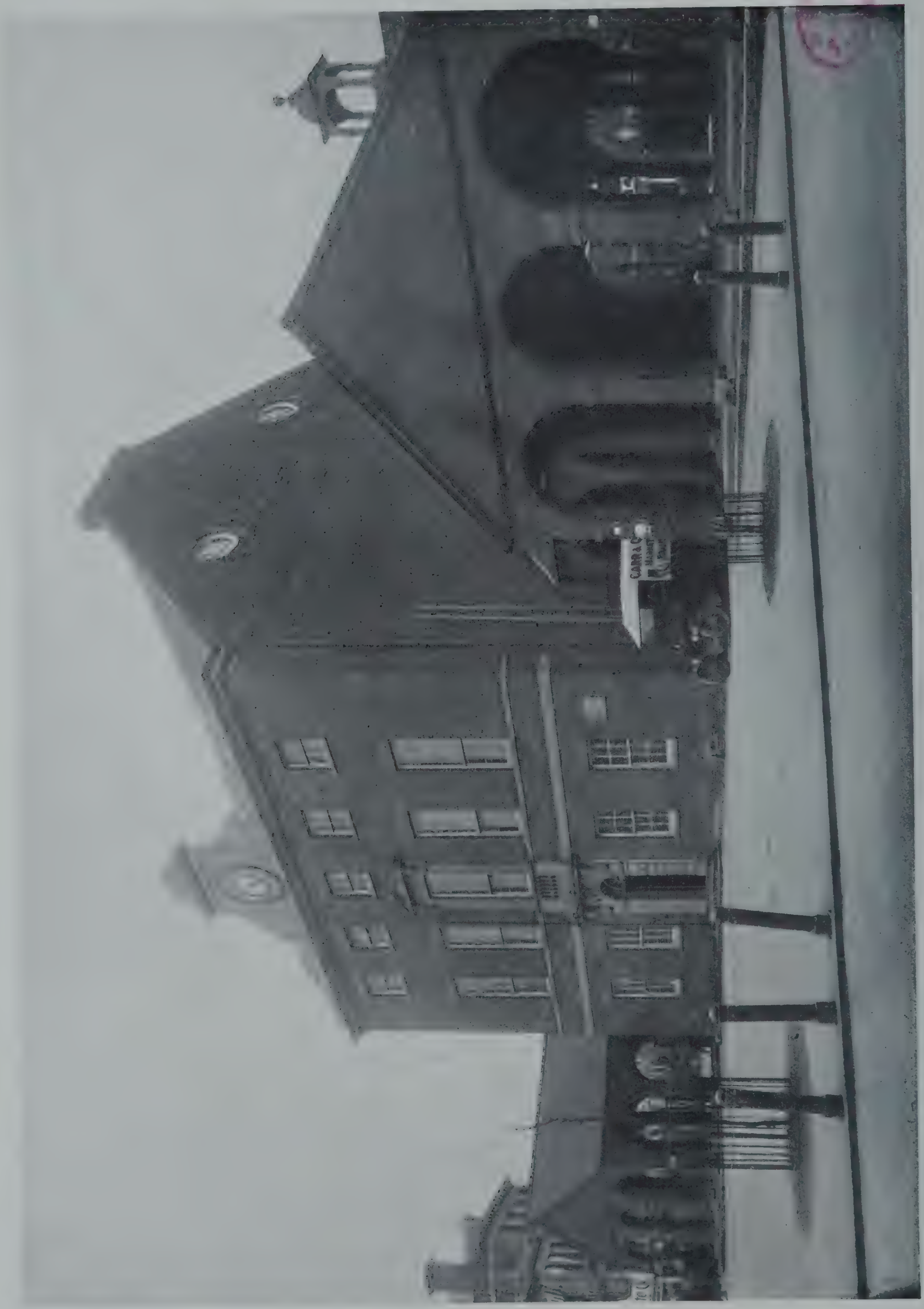
½ IN. SCALE DETAIL
OF CUPOLA.



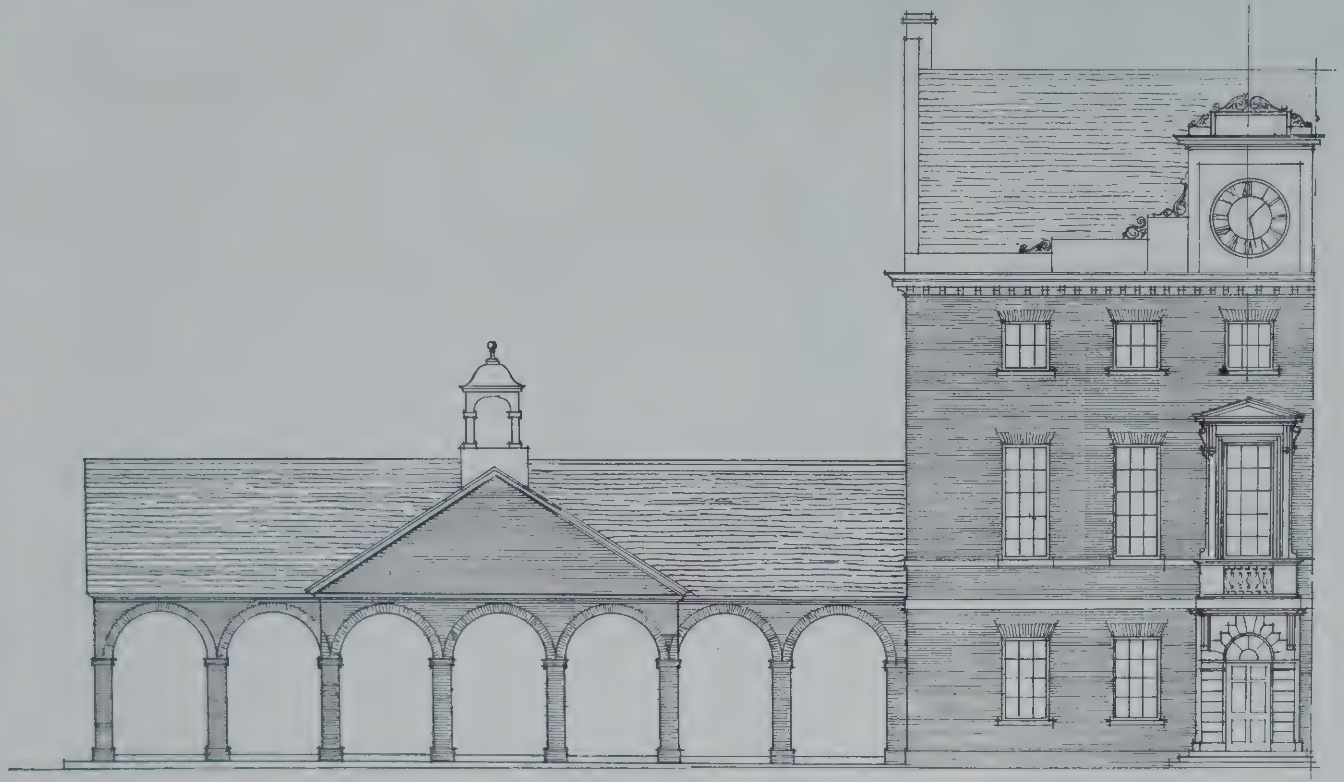
½ IN. SCALE DETAIL
OF IRON BRACKET.

MARKET HALL

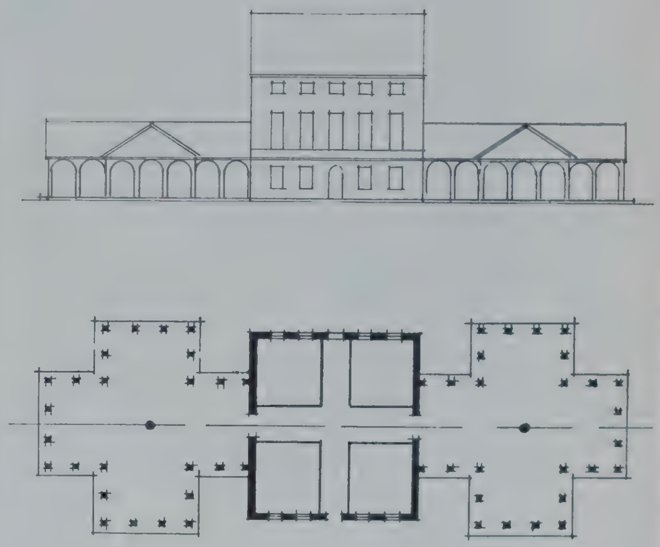
TAUNTON, SOMERSET.



MARKET HALL, TAUNTON, SOMERSET

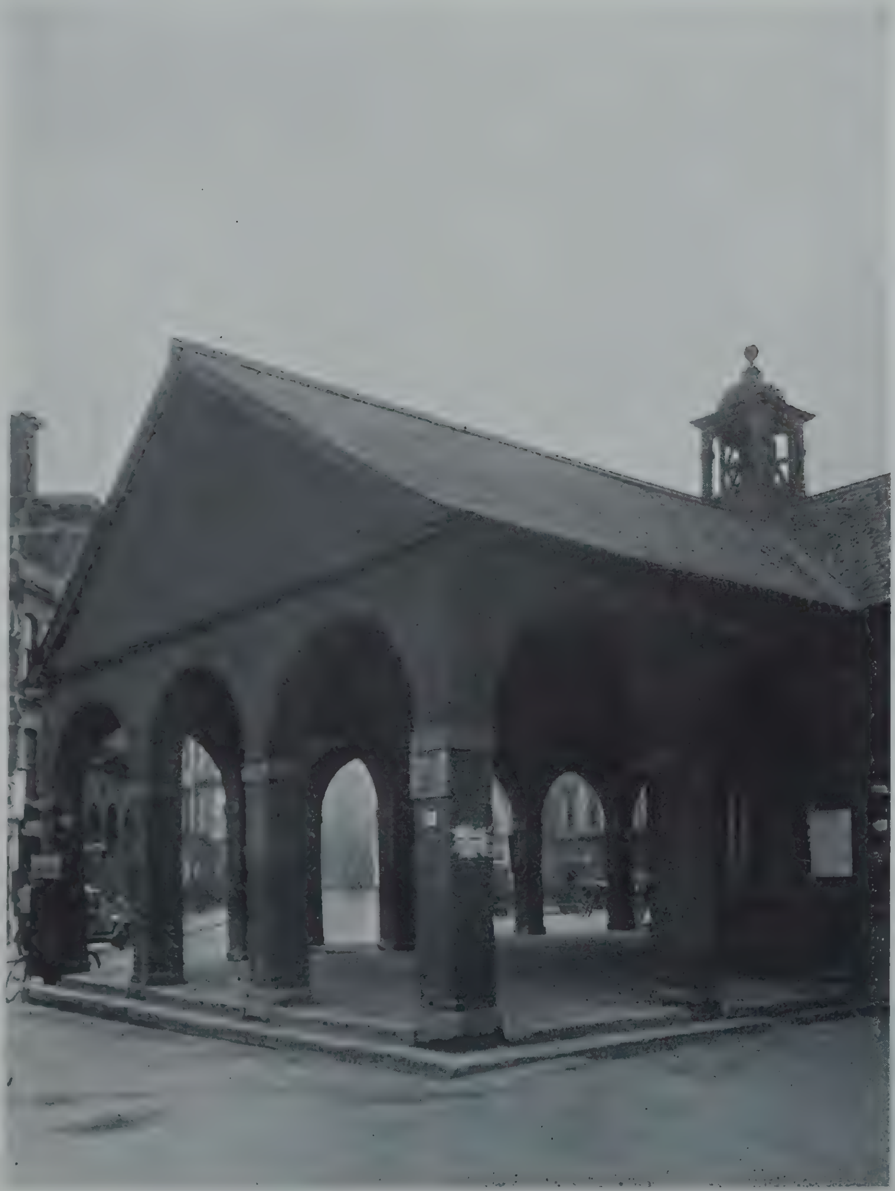


HALF ELEVATION
1/16 IN. SCALE

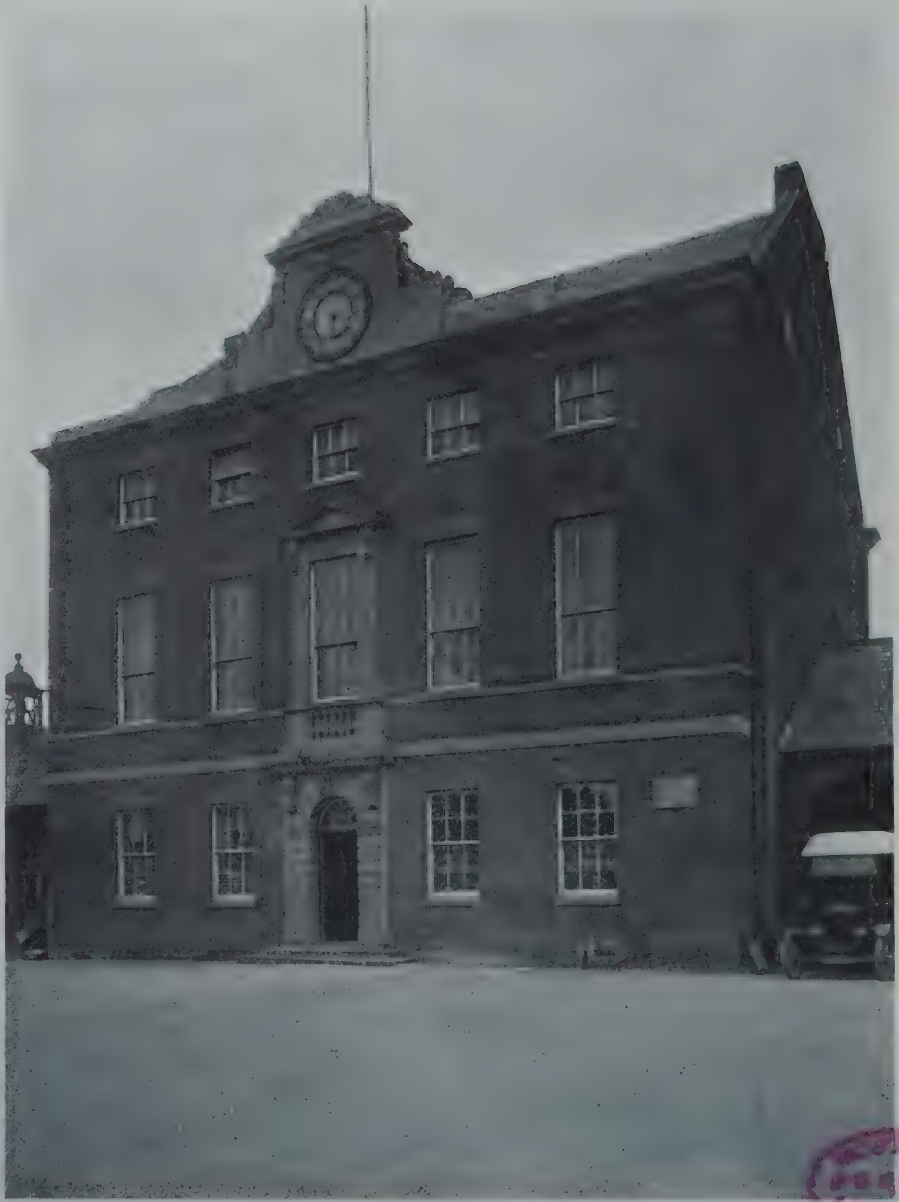


KEY DIAGRAM.
1/64 IN. SCALE.

MARKET HALL.
TAUNTON, SOMERSET.



DETAIL, MARKET SHEDS

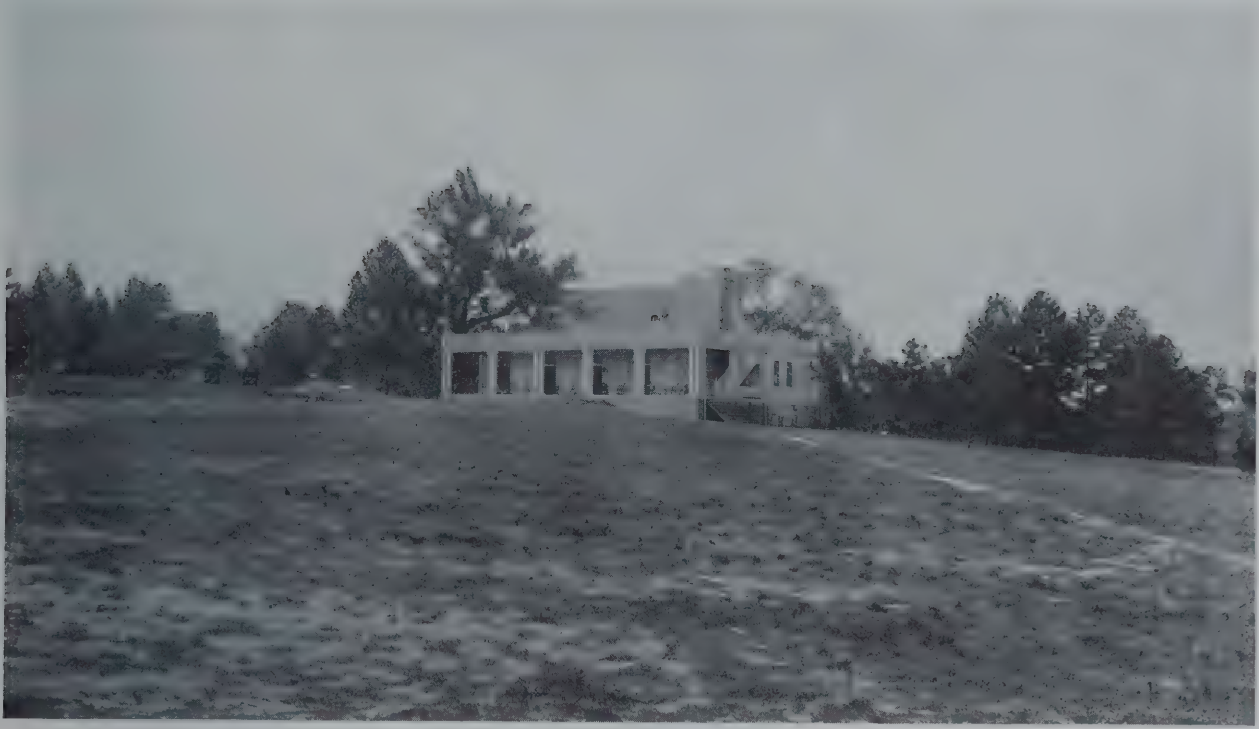


DETAIL, MAIN BUILDING

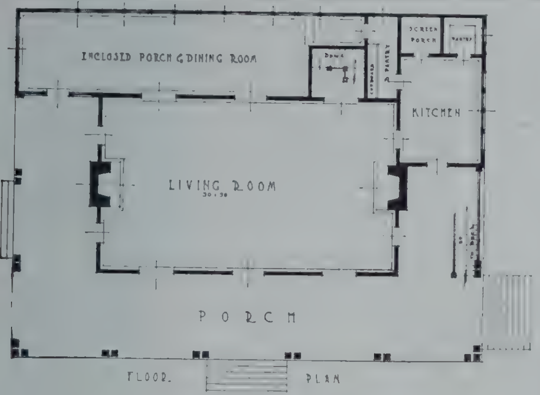
MARKET HALL, TAUNTON, SOMERSET

Fayetteville Country Club, Fayetteville, N. C.

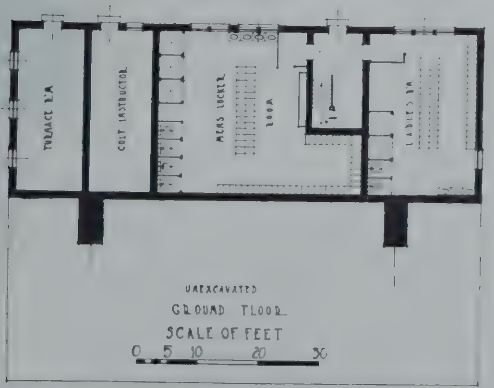
STILES S. DIXON, Architect



View from the Golf Course



Main Floor

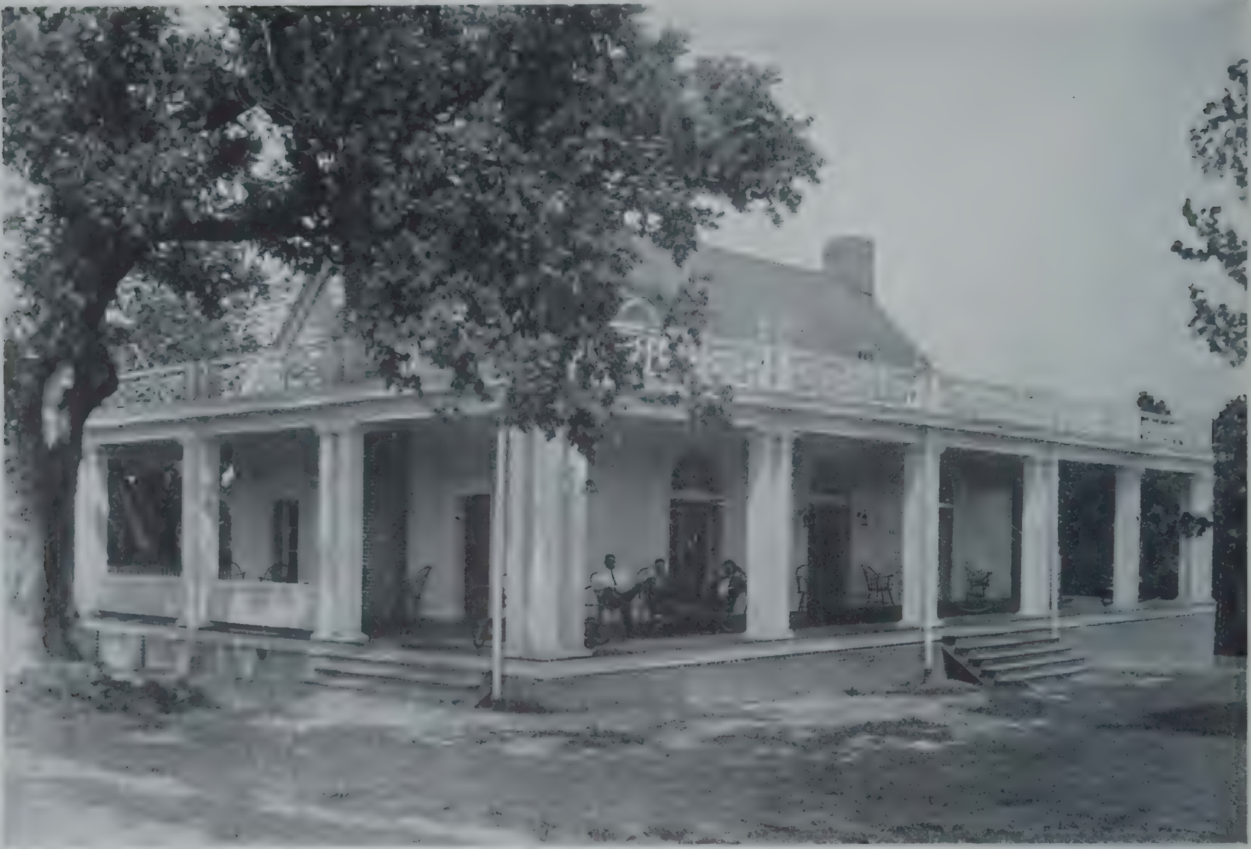


Basement

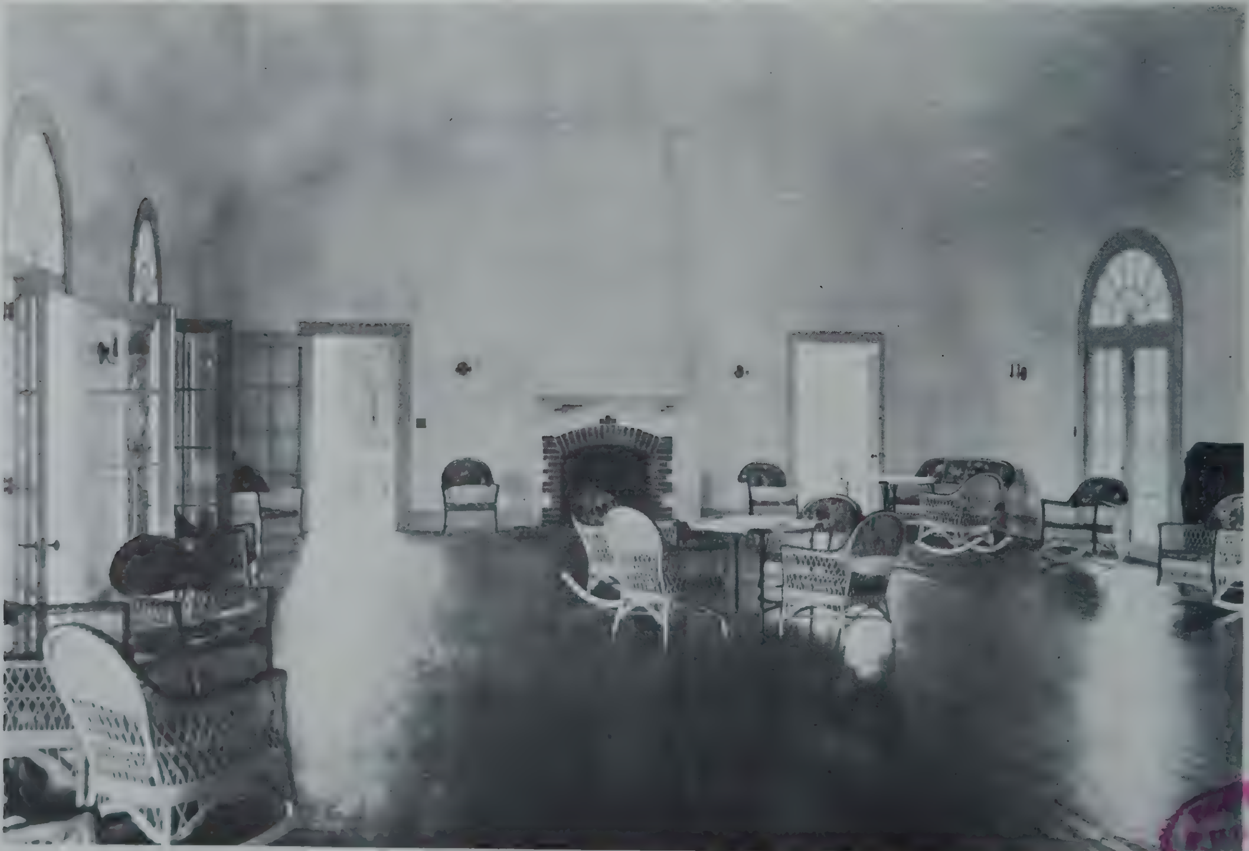
THIS little country club at Fayetteville, N. C., shows that it is possible to give architectural charm and distinction to even a small clubhouse, which though complete in every way, cost but $15,000.

The plan shows a story-and-a-half building located on a falling grade, so that ample space is obtained for a large basement across the back of the structure. No excavation was made under the front of the building, but it was possible to locate in a rear basement a large locker room for men and a smaller locker for women, a furnace room, and a room for the golf instructor. These rooms are all 8 feet, 6 inches high, with large windows above grade, insuring good light and ventilation. On the main floor of the clubhouse is a large living room, surrounded on three sides by a wide, hospitable porch which provides necessary shade. Casement doors with arched tops open onto the veranda.

At the rear of the living room an enclosed stairway leads to the basement, where the locker rooms for men and women are located. The architectural style used for the exterior is a simple adaptation of the Colonial. Columns in groups of two support the porch roof, above which is a low balustrade. The clubhouse itself is covered with North Carolina pine siding, laid 10 inches to the weather. This siding and the exterior trim are painted white. Small "eyebrow" windows ventilated the spaces under the roof and also above the ceiling of the living room.



Near View, Showing Porch Details



Living Room, Fayetteville Country Club, Fayetteville, N. C.
Stiles S. Dixon, Architect

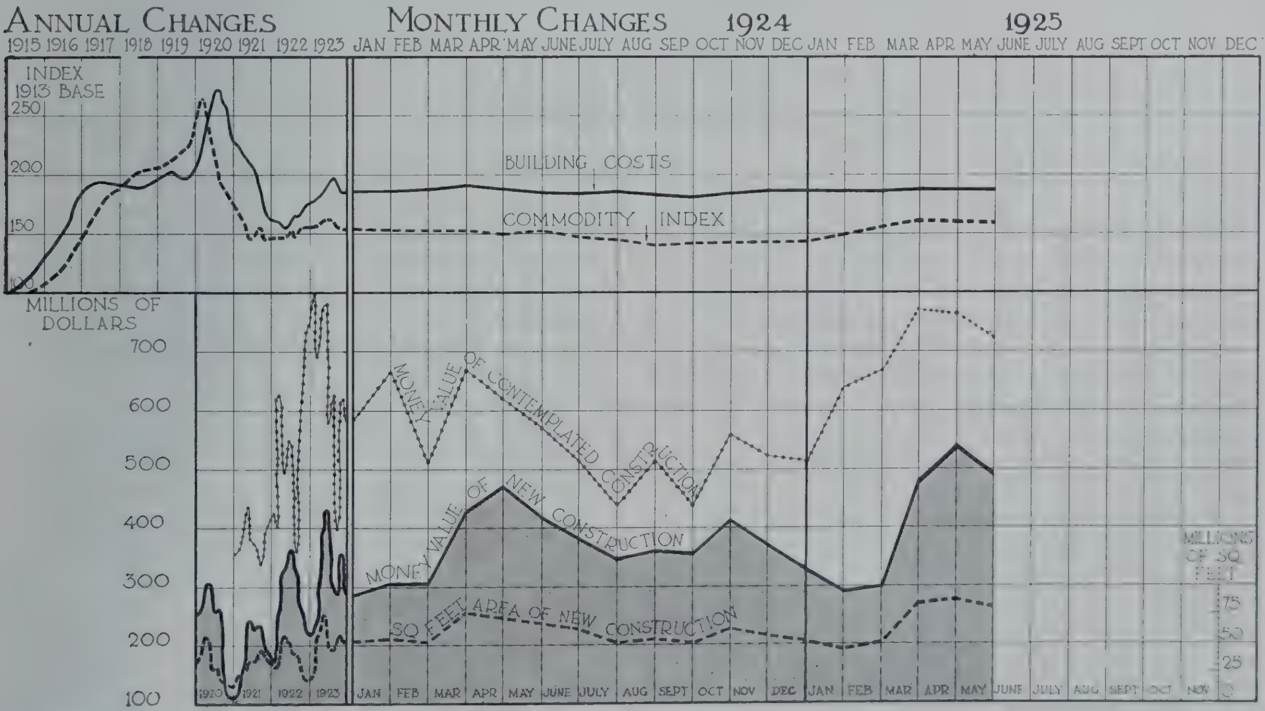
THE BUILDING SITUATION

A MONTHLY REVIEW OF COSTS AND CONDITIONS

BUILDING activity during the months of April and May has assumed record-breaking proportions, according to the reports of the F. W. Dodge Corporation. The total value of new contracts let during the first five months of this year has amounted to over $2,000,000,000 and represents an increase of approximately 10 per cent over that of the corresponding period of last year. During the month of April, the total value of new contracts let showed an increase of 14 per cent over that of March and 15 per cent over that of April of 1924. The total value of new contracts, as shown in the chart below, broke all records for any previous month. New York state and northern New Jersey indicated an active return of interest in building by the recording of new contracts let, amounting to $132,000,000, which was an increase of 57 per cent over March and 22 per cent under the total for April of last year, the record-breaking month for this district. The value of plans filed in April was the highest ever recorded, indicating a period of continued activity, 25 per cent higher than in April, 1924.

This construction activity was well spread over the country, the central West showing the highest volume on record, with a great increase in contemplated new work. The month of May, as shown in the chart, recorded a continuance of this amazing volume of building. The total value of new contracts let during that month represents the second highest monthly total ever recorded, having been exceeded only in April of this year. The contemplated new work continued unusually high in volume during May, being only 6 per cent under the April figures, and 24 per cent higher than the amount reported in May, 1924. In the New York and New Jersey district the total of new contracts let was nearly 3 per cent over that of the corresponding period in 1924, while contemplated new work recorded for this district was greater than in April, and 59 per cent more than in May, 1924.

While it was expected that the early months of 1925 would show a volume of new building approximately equal to the early months of 1924, it is interesting to note that all expectations have been exceeded, probably due to a fairly well stabilized condition in the building material and other fields.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs*. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index*. Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction*. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record*. (4) *Money Value of New Construction*. Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction*. The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

Important Principles of Architectural Economics

PART II. THE FINANCIAL ANALYSIS OF A PROJECT

By JAMES M. GREEN, JR.

Editor's Note. Part I of this article, on the subject of the necessary preliminary investigations before planning a building, appeared in The Architectural Forum for May, 1925. In these pages certain important details of financing are discussed, details which should have careful consideration.

The financial analysis (IV) of a proposed venture is based chiefly upon determination of these items:

1. Method of financing.
2. Ultimate cost.
3. Carrying charges and operating expenses.
4. Revenue-producing possibilities.

The method of financing is too individual a matter to be broadly discussed, and it varies unceasingly in accordance with the availability of funds and interest rates in different places at different times.

Ultimate Cost.

1. Value of land, grading, sidewalks, etc.
2. Carrying charges during construction.
3. Column spacing.

   In a building eight or ten stories high, the spacing for offices should take precedence in importance over that for stores, because the rentals from the offices are greatest.

5. Plan arrangement.

   Generally a centralized service arrangement requires less sacrifice of space than distributed units, and likewise the flexibility for space arrangement is increased on the various floors. Other items to be considered in relation to plan and design are:

   Locations of public utilities.
   Location of courts.
   Fenestration.
   Exterior treatment.
   Advisability of including power and lighting plant in the equipment of the building.
   Interior treatment.
   Appearance of lobby, corridors and general finish, upon which depends much of the building's value.
   Character of plumbing and heating.
   Lighting service.

   The investment problem largely becomes the deciding factor in the interior equipment of the building. It is here that success or failure, as well as utilitarian life, is often determined.

   Elimination of dead space and minimizing cost of structural features.
   Efficiency in control.

6. Proper execution of the contract documents and the efficiency of business administration during time of promotion and construction.

Carrying Charges and Operating Expenses.

During the progress of design analysis must be carefully made, estimating revenues and disbursements. Expenditures will be made up of these items, which represent the total investment in the venture:

Cost of land.
Legal services.
Architects' and engineers' fees.
Loan brokers' commissions.
Promotion.
Interest during construction.
Taxes.
Insurance.
Cost of construction.
Operating equipment and capital.

The Fixed Annual Charges include:

Interest on mortgages.
Amortization.
Sinking funds.
Taxes.
Insurance.

Operating Expenses include:

Administration:
   Salaries; commissions; office expenses; supplies; legal and advertising charges.
Janitor:
   Wages and supplies; living quarters and overhead.
Engineering department:
   Wages; supplies; repairs; fuel supply and ash removal.
Elevator service:
   Power; repairs; wages; supplies; uniforms.
Electrical service:
   Current and lamps.
Alterations and repairs:
   Painting and glazing; plumbing and steam fitting; carpentry; masonry; plastering; electrical work; millwork; hardware; marble and tile; rubbish removal.
General expenses:
   Wages of watchman; water; toilet room supplies; miscellaneous.

The sum total of the fixed annual charges and the operating expenses fixes the gross disbursements. While the carrying charges are stable, the operating expenses are subject to much variation, depending upon the purchasing power of the management and its control of labor. In the schedules given here the sources of revenue cannot be placed, because each building determines its own. The operating expenses added to the items of taxes and insurance, when deducted from the total revenue, give a sum designated as net earnings upon the total investment. It is apparent, however, that there must be deducted from this balance the annual costs of financing. The remaining sum is then the earned revenue.

There are a few independent variables which directly affect income and which should be noted here.

Taxes: Variation in taxes in different localities renders it difficult to fix a rate. On a rising realty market the assessments are too low, and conversely on a falling market.

Mortgages: The percentages that can usually be secured upon mortgages vary from 50 to 75 per cent of the value of the property, depending upon the security, the yield, the condition of the money market, and the method of securing funds.

Rented Area: The ratio of the rented area to the total rentable area is contingent upon service and demand, varying with times and conditions. When a section of a city is fully rented at fair rates, new construction and consequent competition are stimulated, causing vacancies.

Operators consider that 10 per cent of vacancies over a term of years is fair. Therefore, the actually rented area is really only 90 per cent of the apparent rentable space.

It should be understood also that the unit of a square foot of floor space, with a price attached to it, gives no idea of location, style of architecture, materials used in construction, safety, light, ventilation, convenience, character of neighborhood, or management and service offered, all of which enters into the value of a square foot of area. Permanent partitions, enclosing corridors, elevators, stairways, toilets, janitor closets, etc., possess the same relation to rentable area as do outer building walls. These have been designated "areas of no return."

After a typical plan has been adopted for the floors above the first, and the amount of revenue each floor is expected to yield is established, a standard has been created which should remain constant throughout. This standard is not affected by the number of tenants. When conditions arise which make it necessary to increase or decrease basic charges, and when unusual alterations change the appearance of a floor or throw corridor spaces into leased premises, the form of the square foot area may be changed to meet the new conditions, but the amount of the typical rentable area should not be changed, or the calculations may be upset.

It is highly desirable to have the total rentable area of a floor remain the same regardless of the number of subdivisions. This is accomplished by taking measurements to the middle of the separating partitions. To determine the number of square feet in a given area, measure from the plaster surface of the outer walls and from the plaster surface of the corridor and other permanent partitions, thence to the center of partitions that separate the premises from adjoining rentable areas. No deductions should be made for columns or other necessary structural projections.

The value of stores or shops is based upon site rather than upon unit price. The use of glass and plaster varies greatly in store fronts, because of the diverse needs of tenants and also on account of variations in municipal ordinances. For these reasons it is found better to measure the rentable area of stores from the building line. Some fronts have little glass or none at all, but full glass fronts may be installed at any time, and street frontages have high selling values regardless of glass installation. Areas on alleys are of doubtful value, and hence such frontages are not classed as street frontages. To determine the number of feet in a rentable store area, measure from the building line on the street frontages and from the plaster surface of other outer building walls; from the plaster surface of corridor and other permanent partitions to the middle of minor partitions separating adjacent rentable areas. No deductions should be made for vestibules inside the building line or for columns and other necessary structural projections.

The particular difference in buildings will be found in the areas set aside for the joint use of tenants, such as corridors, toilets, elevators, and stairways; and in the areas utilized for the building's service, such as janitor closets, pipe shafts, meter closets, etc. The cost of cleaning and maintaining joint areas is charged to the tenants in proportion to the spaces rented. It is, therefore, unnecessary that such spaces should be measured or considered in calculations, but if the areas used for the building's services are measured, then the same methods as applied to reckoning rentable areas should be employed. This has already been explained.

In basements, if rentable areas extend beyond the building line under the sidewalk, measure from the finished surface of the retaining wall and the plaster surface of corridor and other permanent partitions to the middle of partitions separating adjacent rentable areas. If the rentable area is entirely within the building line, measure from the plaster surface of outside walls, and so on in accordance with the usual practice of measuring office floors. No deductions should be made for columns, projections, and footings necessary for construction.

The element of depreciation is contingent upon the assumed commercial or economic life of the building, and on the rate at which the stockholders can conveniently accumulate a sinking fund to finance required improvements. If the economic life of a building can be estimated with reasonable accuracy and a certain sum be set aside annually at accrued interest, which sum should equal at the end of economic life the amount required to offset depreciation, there is assured protection against shortage.

Then, in accordance with the formulæ from the "Handbook of Cost Data," by H. P. Gillette, calculations of the theory of depreciation is readily convertible to rule in somewhat this manner:

Compound Interest

Let, A = accumulation of $1 and interest during a specific period.
r = rate of interest, payments made at the end of year.
n = number of years.

then $A = (1 \ r)^{n}$

It is convenient to bear in mind that interest compounded doubles the investment in approximately the number of years obtained by dividing 72 by the rate of interest This is not strictly accurate, but for quick estimating it suffices.

Sinking Funds

To determine the deposit which must be annually placed in a fund, drawing compound interest and to equal $1 at the end of a given term of years, let

n = number of years (economic life).
r = rate of interest.
d = the annuity or the sum deposited at the end of each year, bearing interest at "r" rate, which will redeem $1 at the end of "n" years.

Then,

$$d = \frac{r}{(1 \ r)^{n} - 1}$$

Here is a table giving the required annual deposit in a Sinking Fund to redeem $1 in "n" Years:

Years	5%	4%	5%	6%
25	.02743	.02401	.02095	.01823
30	.02102	.01783	.01505	.01265
35	.01654	.01358	.01107	.00897
40	.01326	.01052	.00828	.00643
45	.01078	.00826	.00626	.00470
50	.00887	.00655	.00478	.00344

Now,

If "d" is the required annual deposit for a fund to redeem $1 at the end of "n" years.

Then,

100 "d" is the percentage of the total cost of the building required for deposit to amortize the cost during its economic life.

For simple demonstration, let us suppose that $1,200 represents the fund to be accumulated, or else the cost of the building. Then by the formula,

d = .02401
d % .02401
100% d = .02401 X 100% = 2.401 per cent, hence the depreciation in this instance is shown to be nearly 2½ per cent annually.

Now, if it is desired to redeem $1,200 at the expiration of 25 years, the funds to bear interest at 4 per cent, then the problem might be expressed thus:

d = .02401 which redeems $1.
$1,200. X .02041 = $28.812 which is the annual required deposit.

The formula is conversely solved thus:

The worth or amount at the end of "n" years invested annually at "r" per cent is

$$W = \frac{(1 \ r)^{n} - 1}{(1 \ r)^{n} \ r}$$

$$d = \frac{1}{r}$$

Variable Fundamentals Affecting Returns (V.)

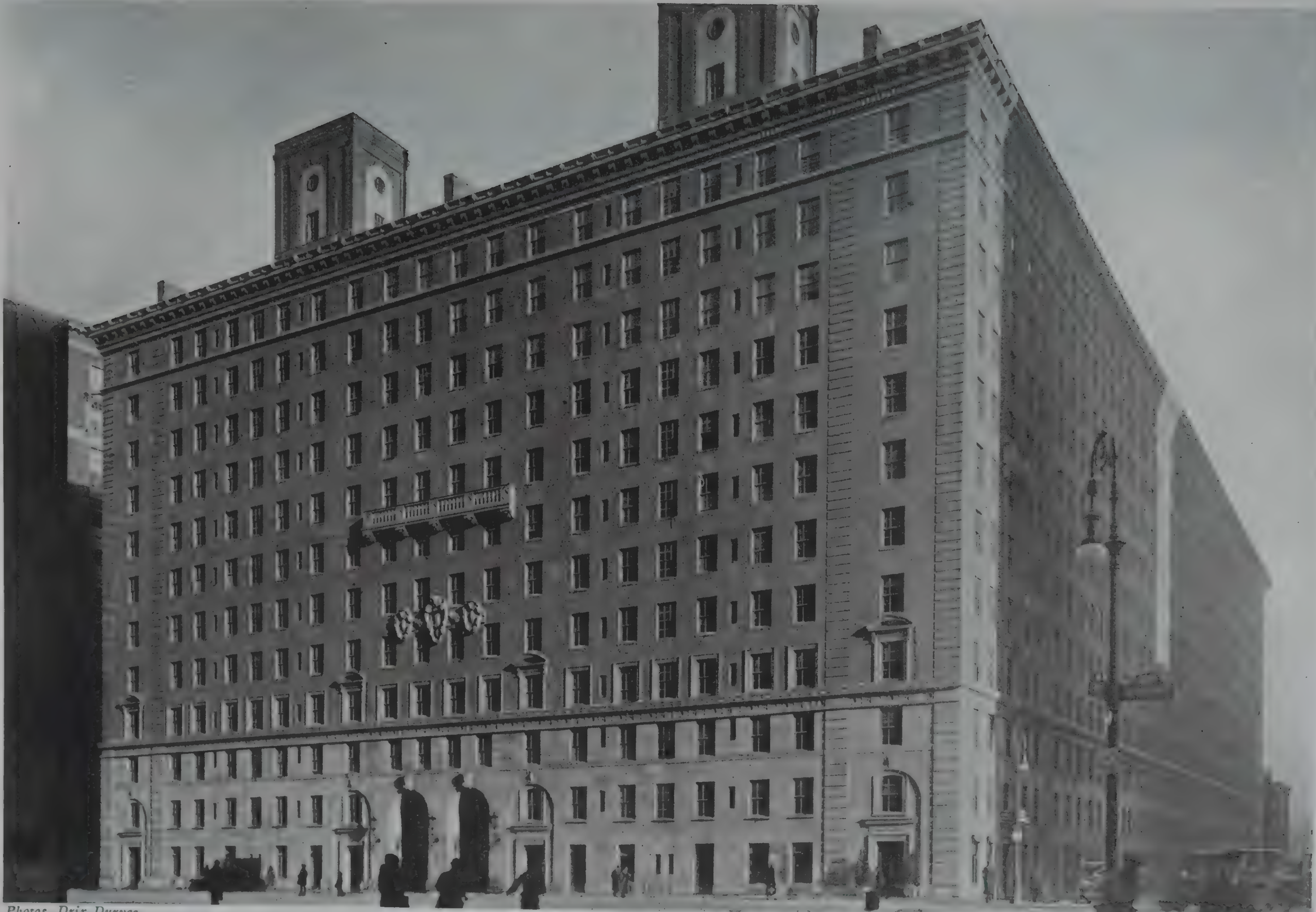
It is essentially desirable that the various factors assimilated in a design should be determined by the relative importance of each. Various kinds of equations have been introduced to express solutions, but the writer is of the opinion that there is no method as dependable as making trial solutions until the mathematical skeleton is perfected. If, after making a general solution containing nearly all of the principal factors involved a sort of budget is determined upon, and if particular emphasis is laid upon investigation of the individual variables, the financial future is reasonably under control.

The fundamental variables may thus be classified:

1. Cost of Land. This, however, is truly no variable, since no architectural problem can rationally be studied until the actual site is determined upon.
2. Average Annual Gross Rental per square foot.
3. Cost of Building per cubic foot.
4. Cost of Operation.
5. Number of Rentable Stories.
6. Ratio of Rentable Area to Gross Area.
7. Ratio of Building Area to Lot Area.

The value of city buildings is based upon earnings, while that of farm property is based upon market prices. City buildings should not be valued upon the cost to construct or reproduce, but on the basis of their appropriateness to a given use for which there is an active demand. It is the ignoring of this fact that brings realty booms to dire ends, for prices have been artificially stimulated without due regard for a conservative income based upon normal demand. It is only safe to limit mortgage loans to such a sum that if operating expenses remain the same but gross rentals decrease one-third, the interest charges will be earned comfortably.

Solving the problems involved in the economics of structural investment requires painstaking research and conservative judgment of past, present and future values. It is because of the proper consideration of the factors affecting investment that buildings properly located, designed and operated, are not only safe and excellent reservoirs of capital, but give much pleasure and pride in ownership.



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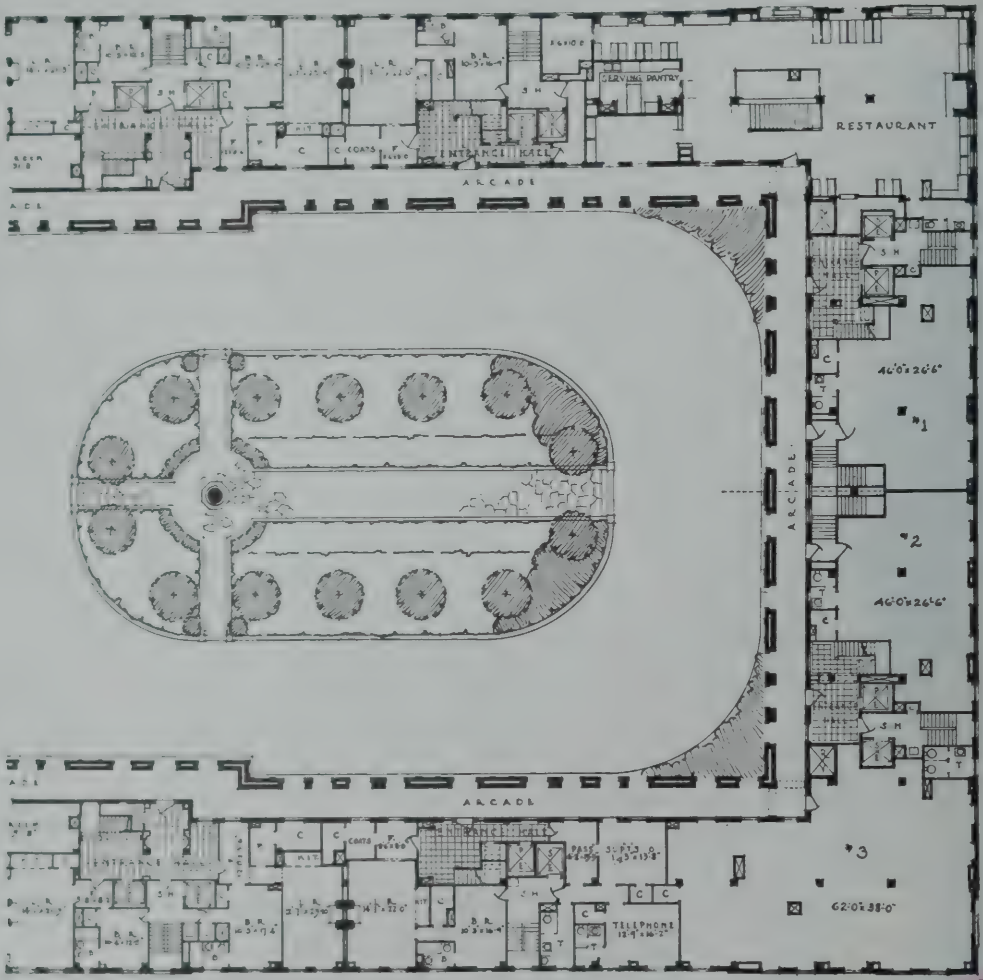

PLAN, ONE HALF NO. 277 PARK AVENUE, NEW YORK

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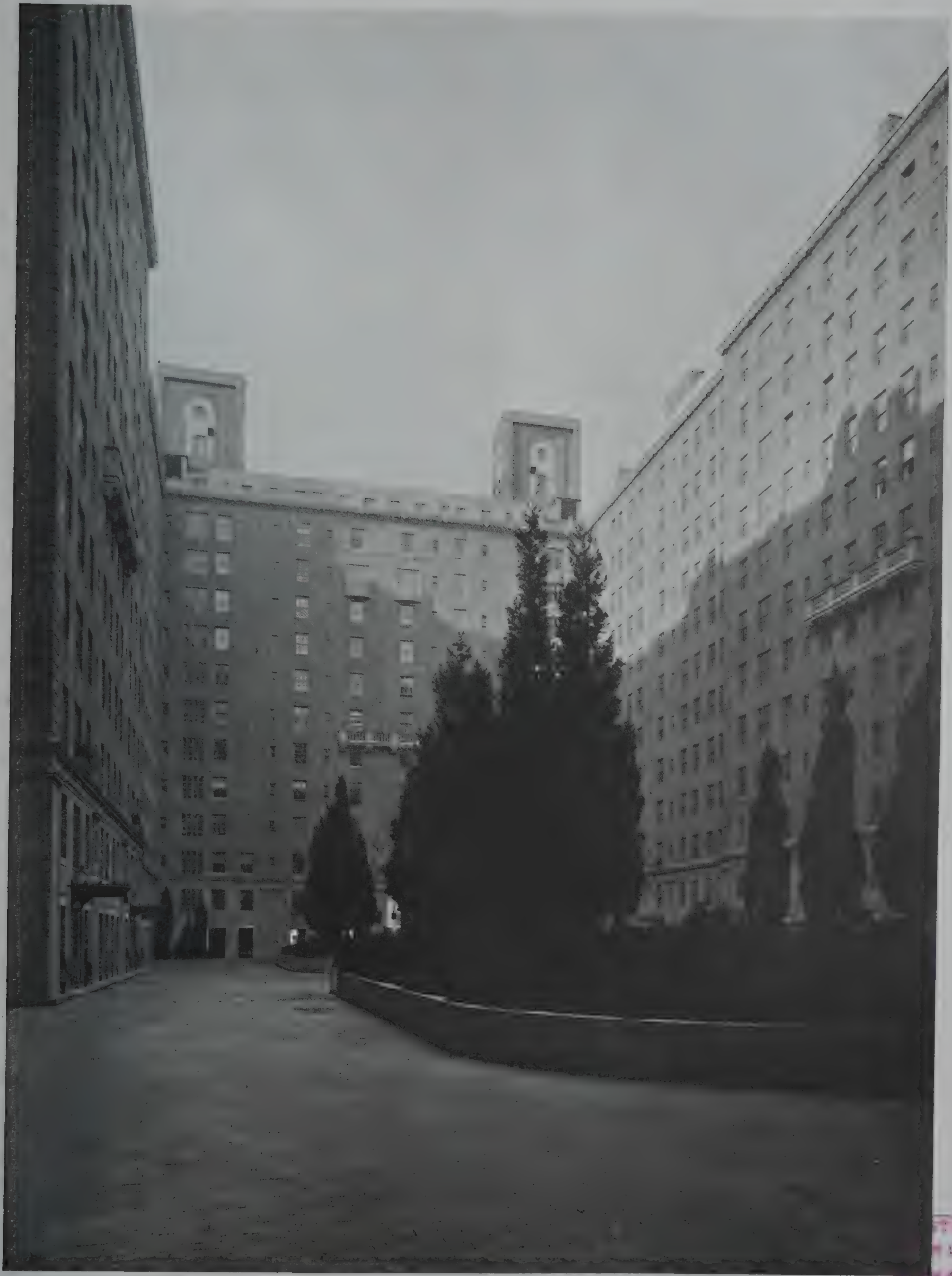

INTERIOR COURT AND GARDEN, NO. 277 PARK AVENUE, NEW YORK
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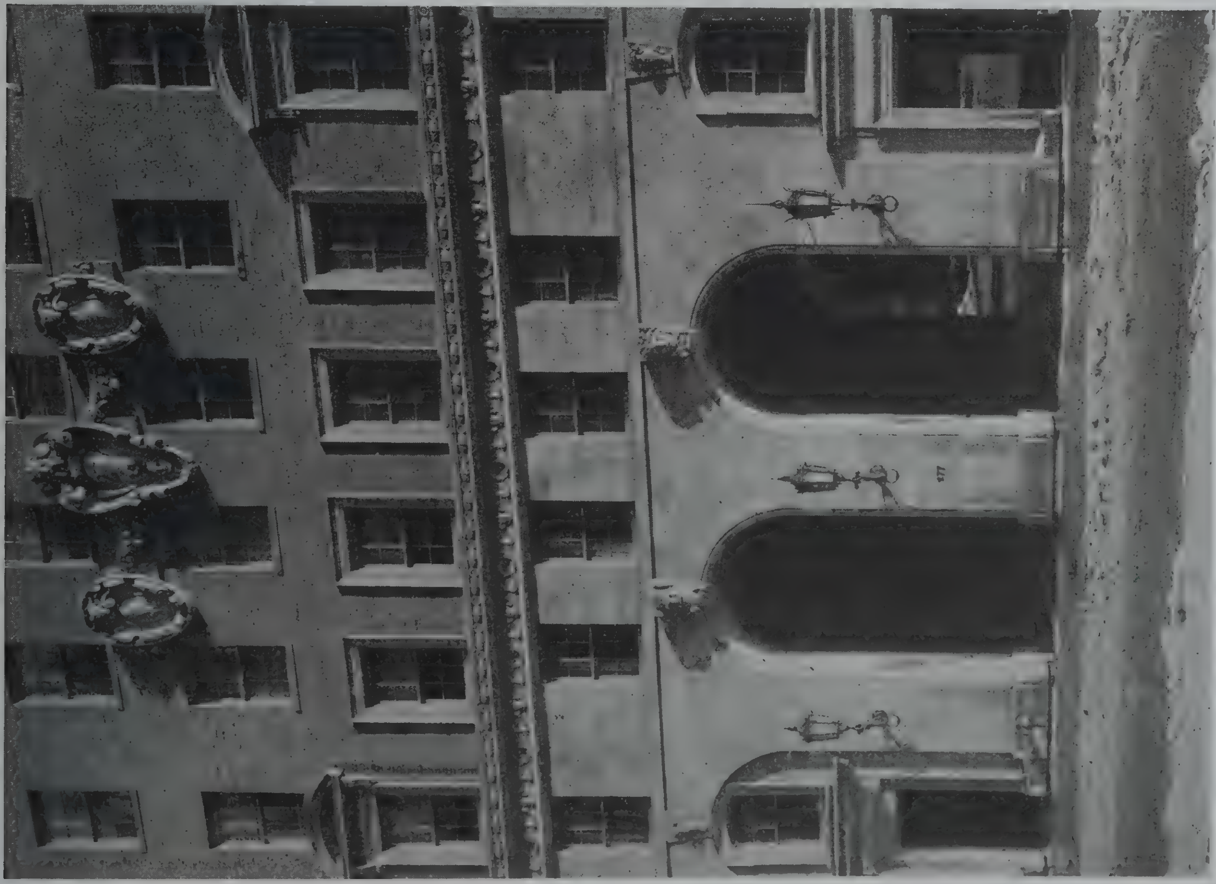
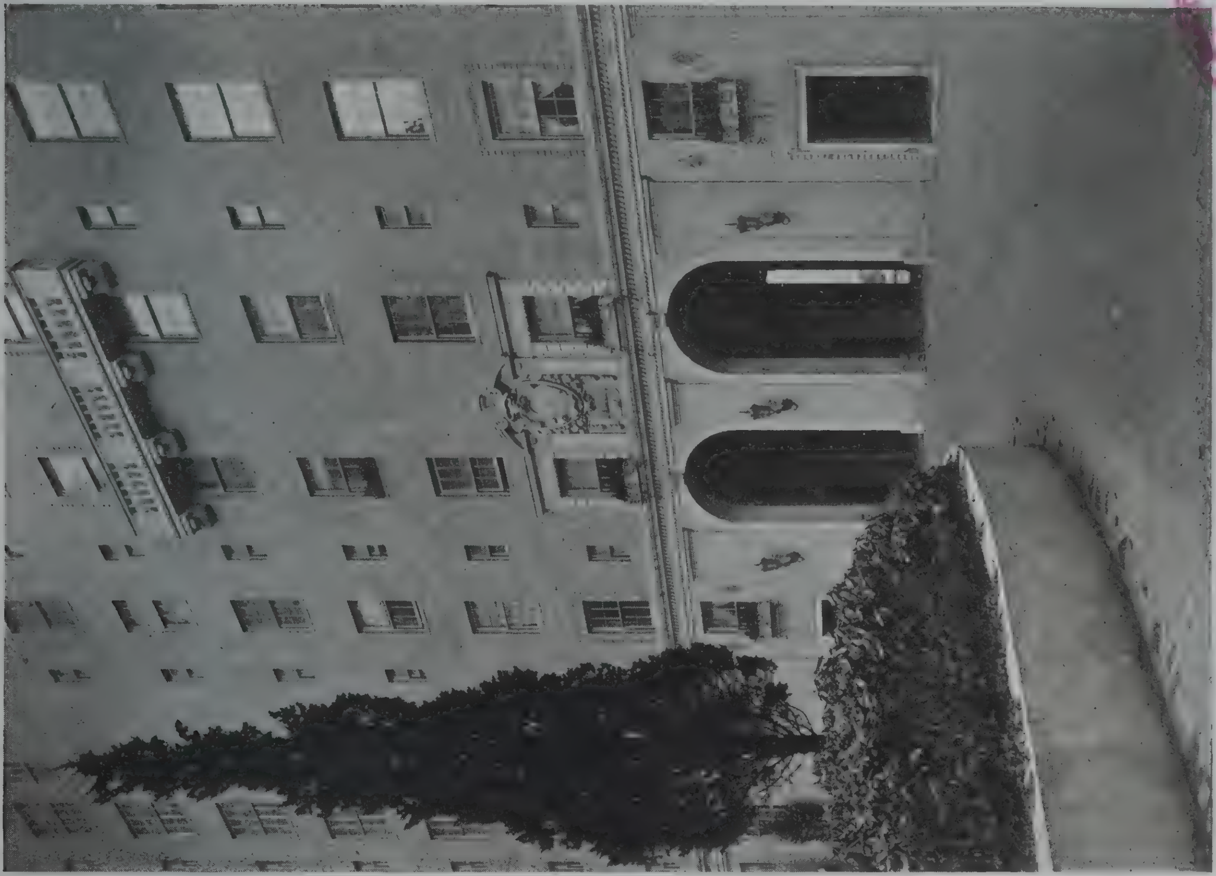


DETAIL, EXTERIOR OF ENTRANCE TO COURT



ENTRANCE ARCHES FROM THE COURT

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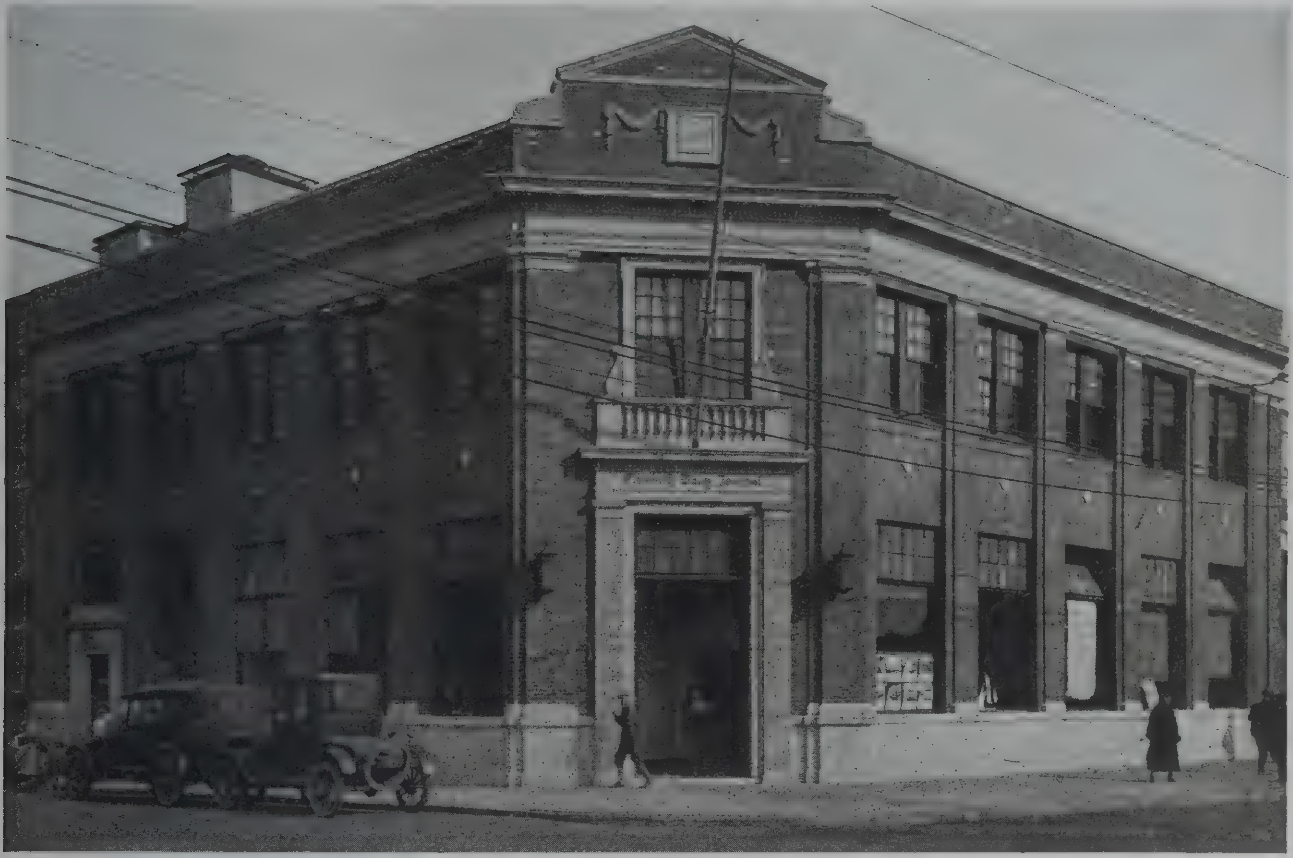
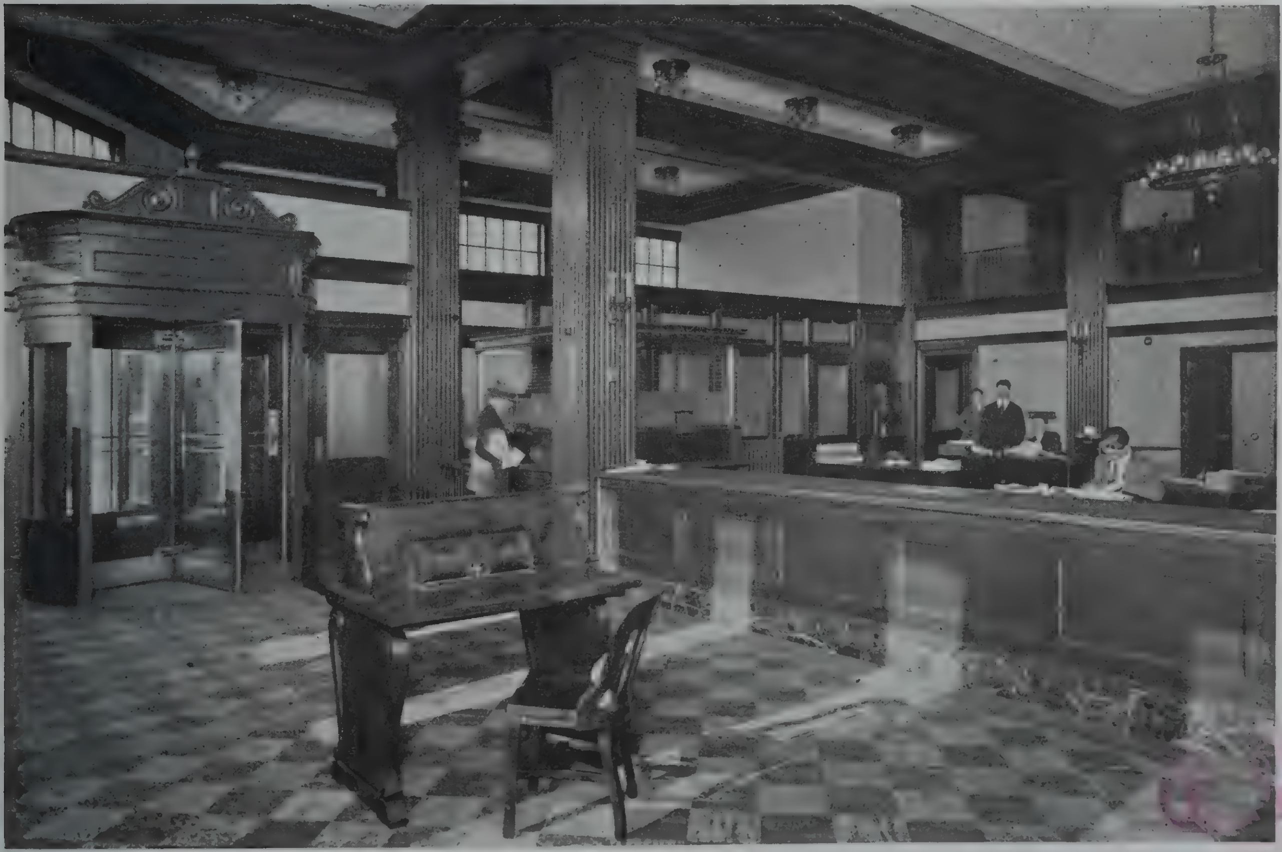


FRONT FACADES



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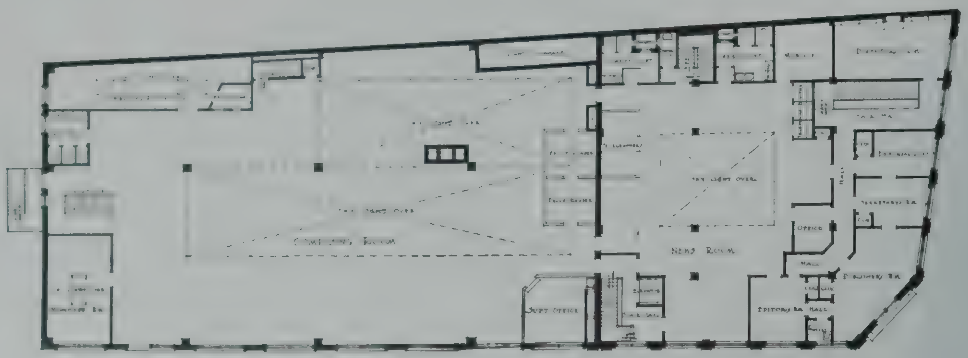
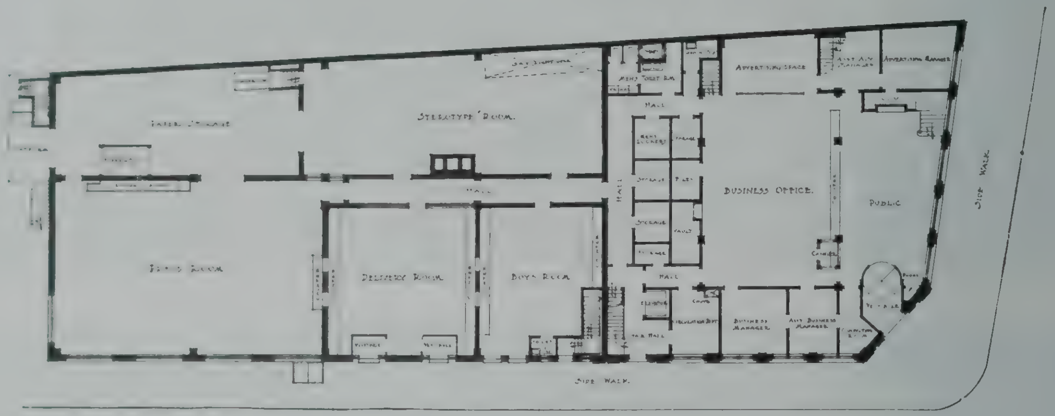
MAIN OFFICE

ELIZABETH DAILY JOURNAL BUILDING, ELIZABETH, N. J.

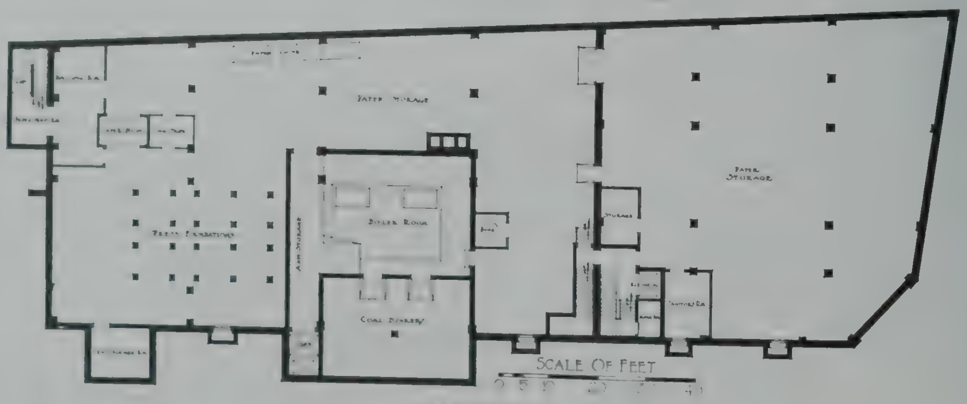
HOLLINGSWORTH & BRAGDON, ARCHITECTS



SECOND FLOOR



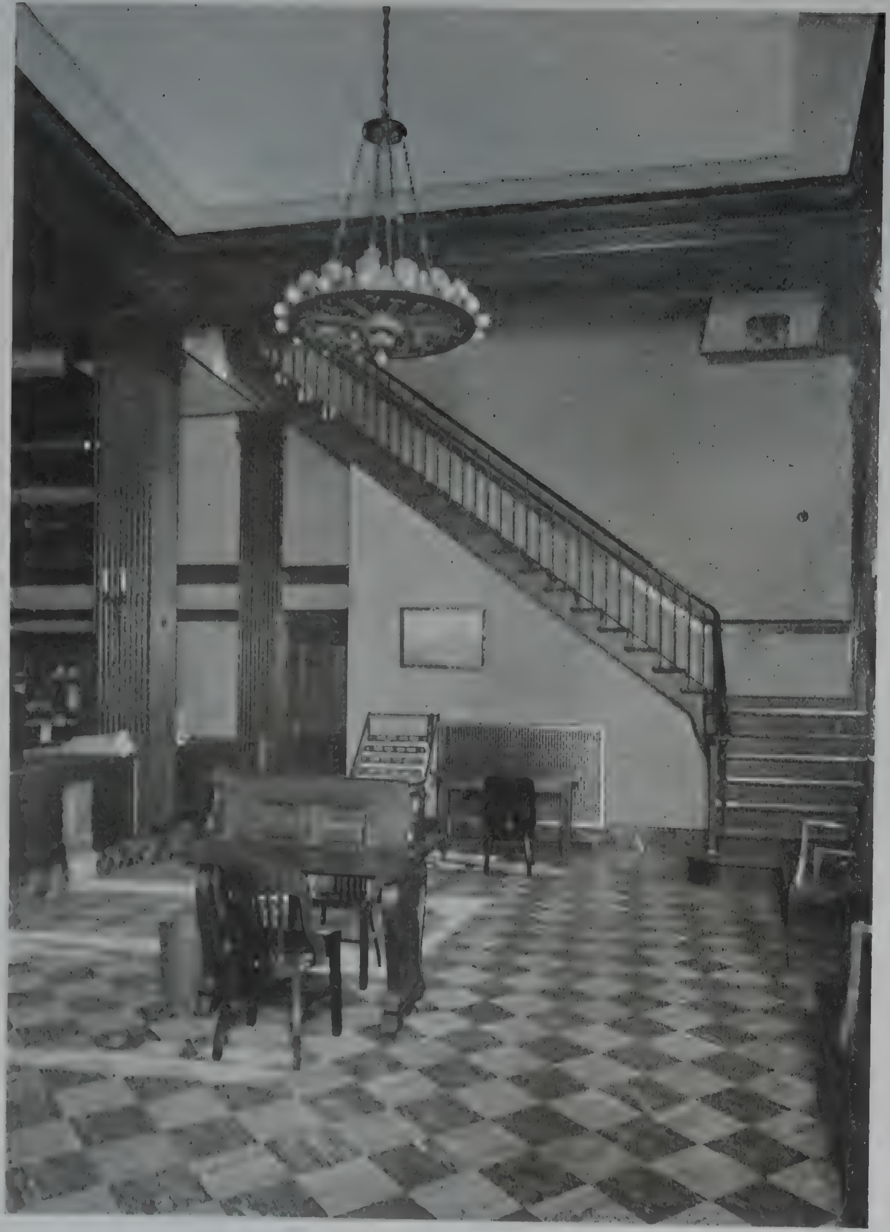
FIRST FLOOR



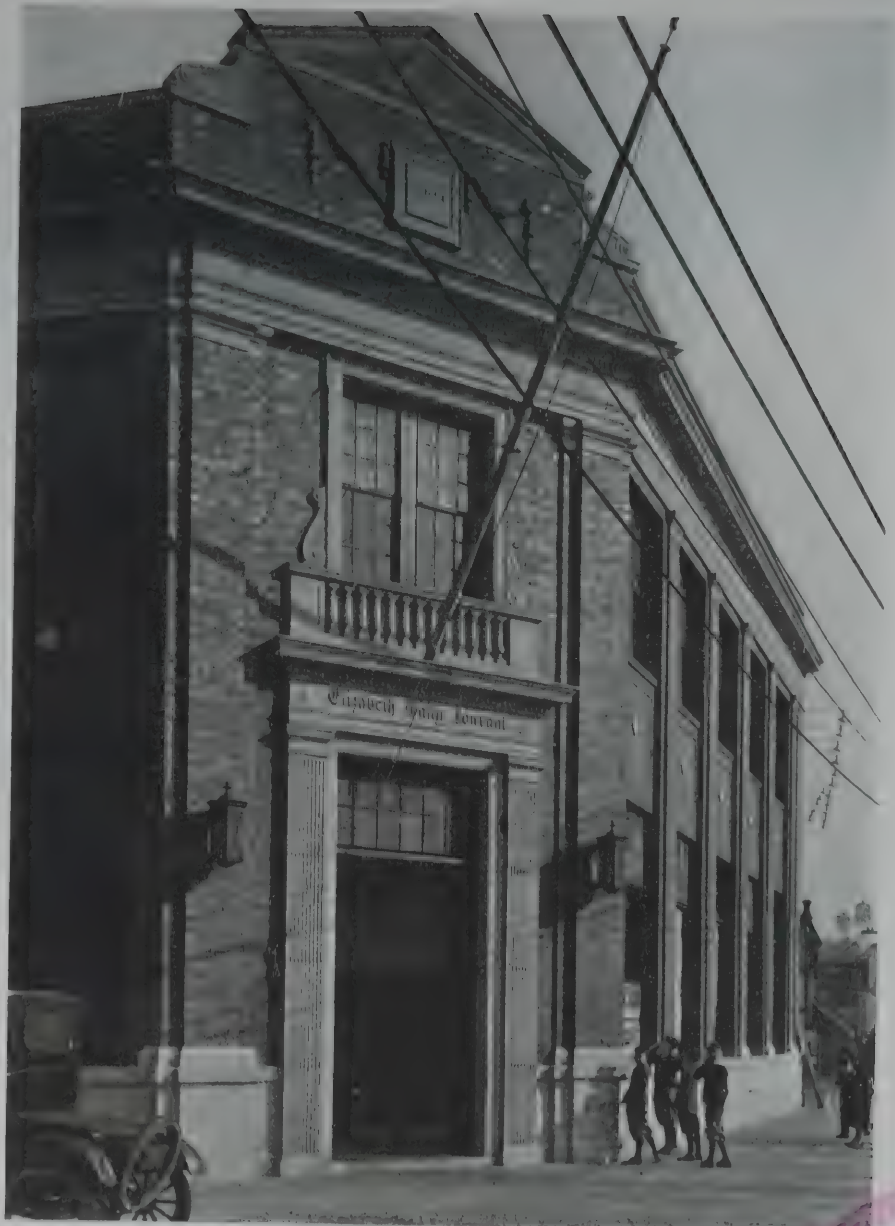
BASEMENT

PLANS, ELIZABETH JOURNAL BUILDING, ELIZABETH, N. J.

HOLLINGSWORTH & BRAGDON, ARCHITECTS

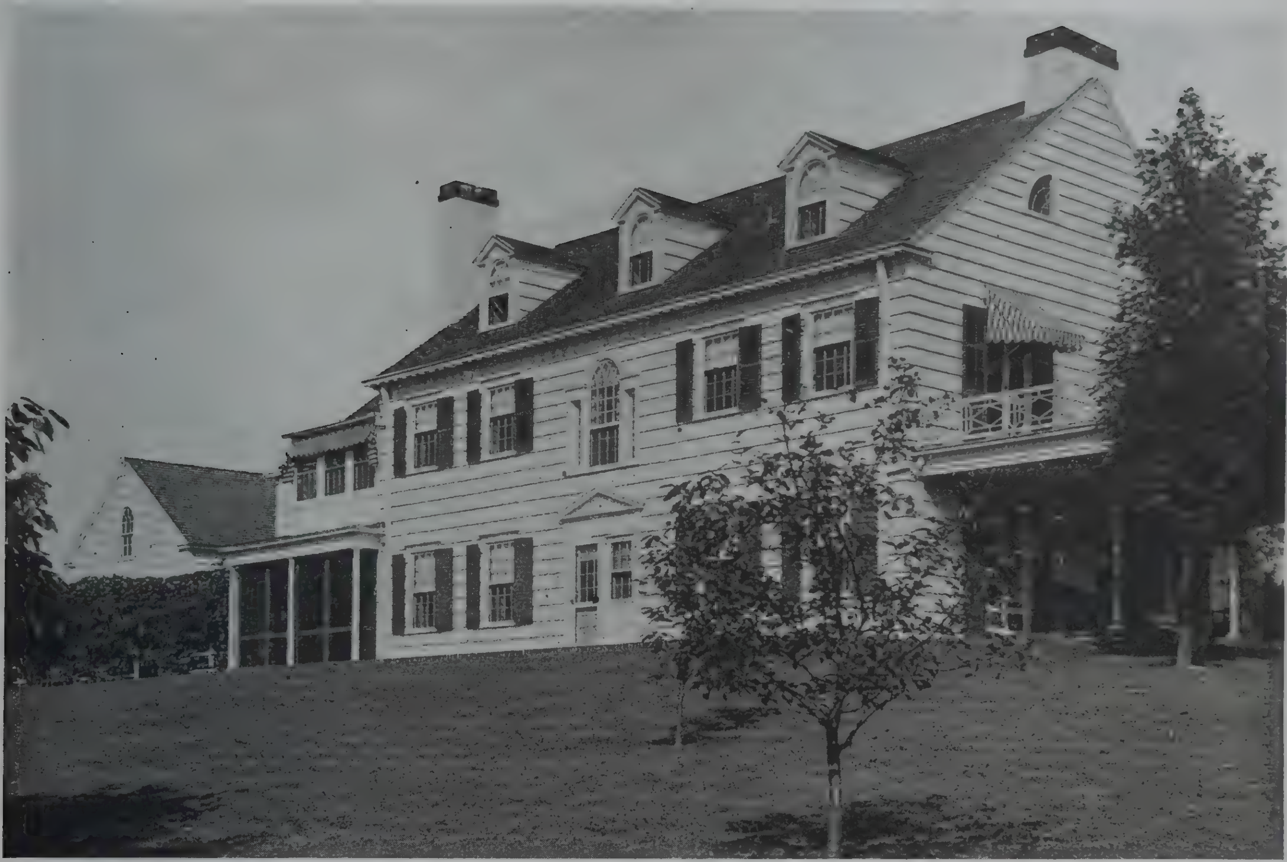


STAIRWAY IN MAIN OFFICE

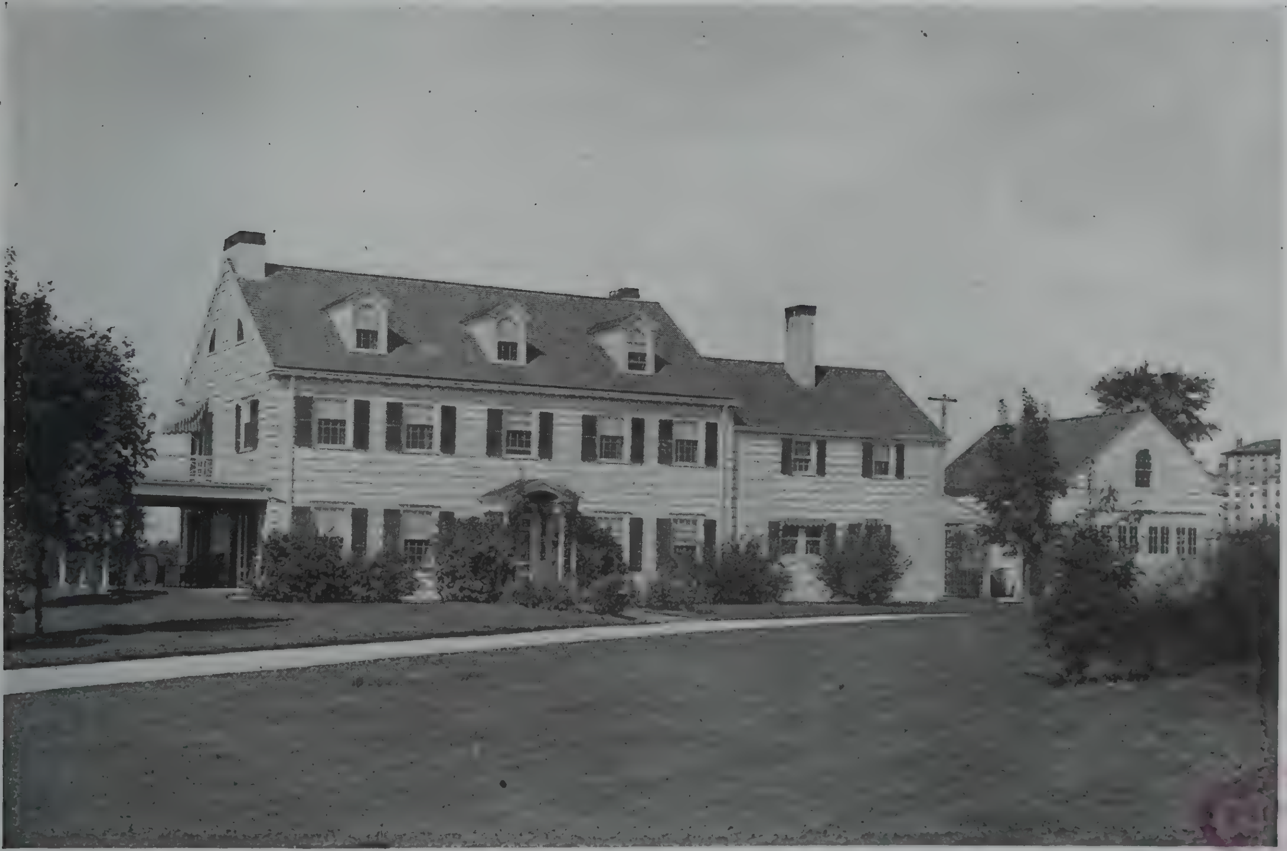


DETAIL OF ENTRANCE DOOR

ELIZABETH DAILY JOURNAL BUILDING, ELIZABETH, N. J.
HOLLINGSWORTH & BRAGDON, ARCHITECTS



GARDEN FRONT

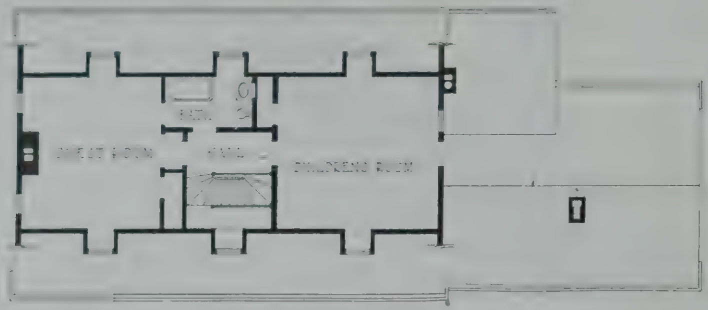


Photos. Kenneth Clark

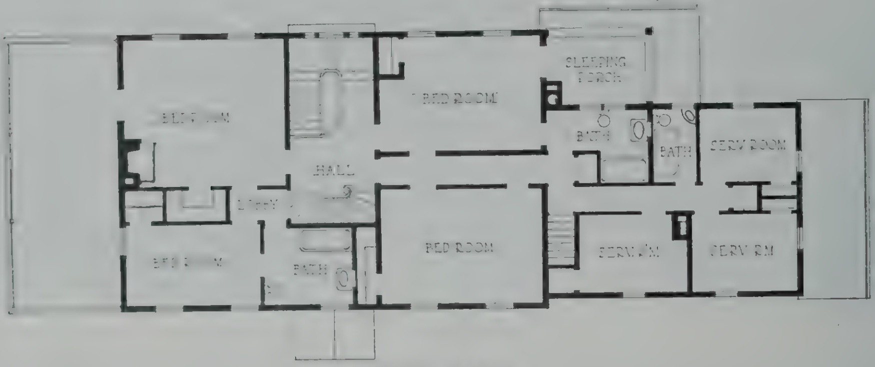
(Plans on Back)

HOUSE OF SEAVEY BATTELLE, ESQ., RYE, N. Y.

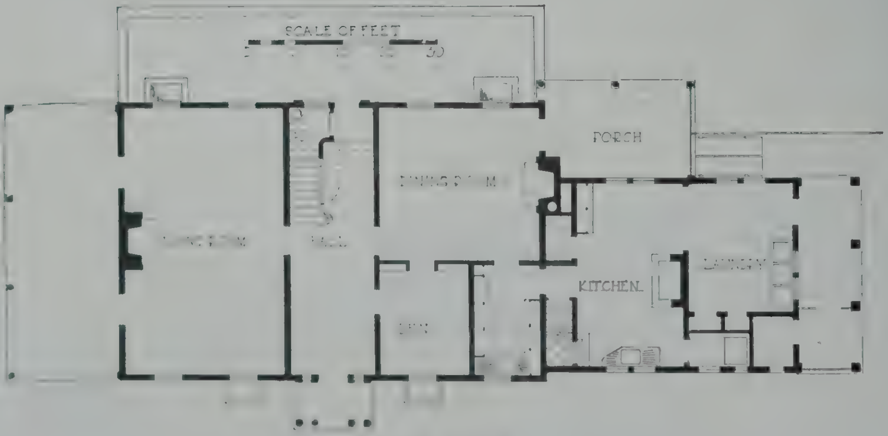
ELECTUS D. LITCHFIELD & PLINY ROGERS, ARCHITECTS



THIRD FLOOR

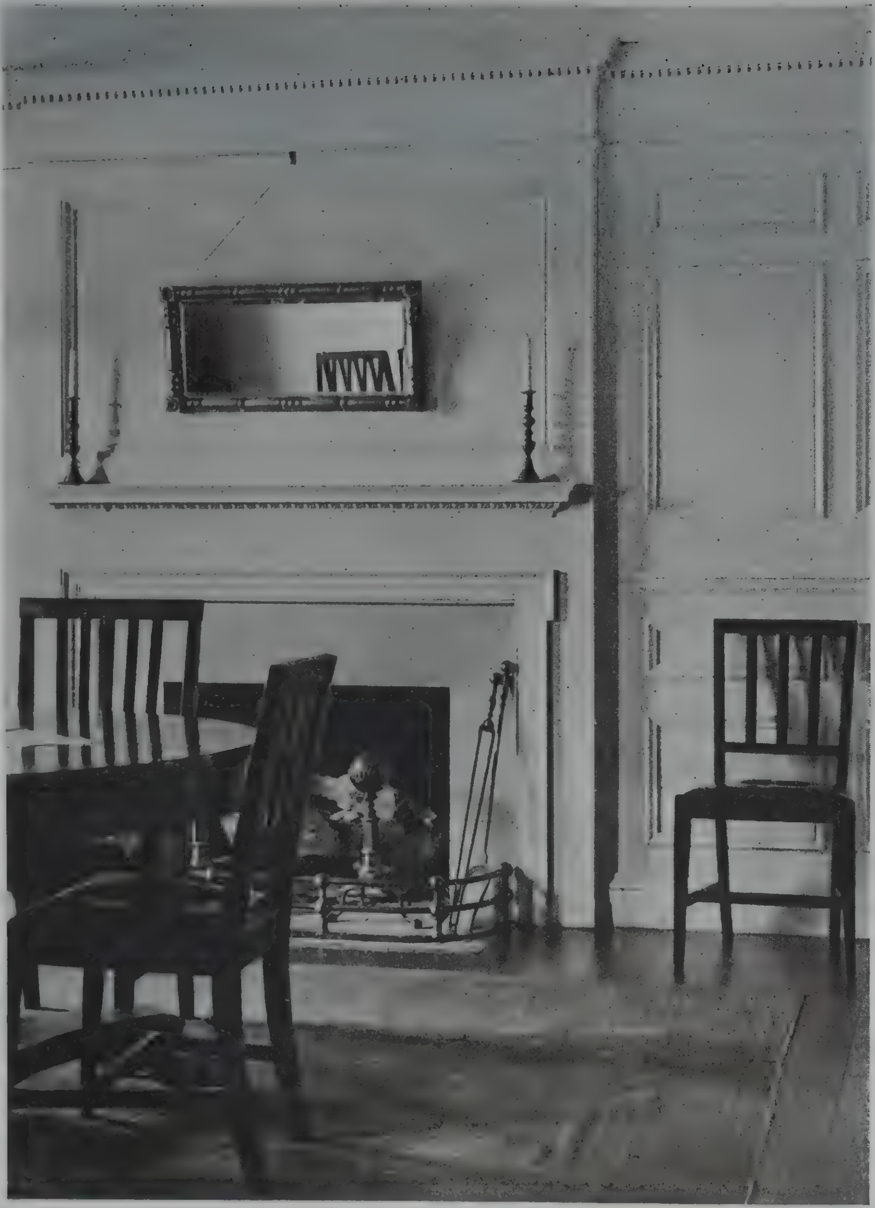


SECOND FLOOR

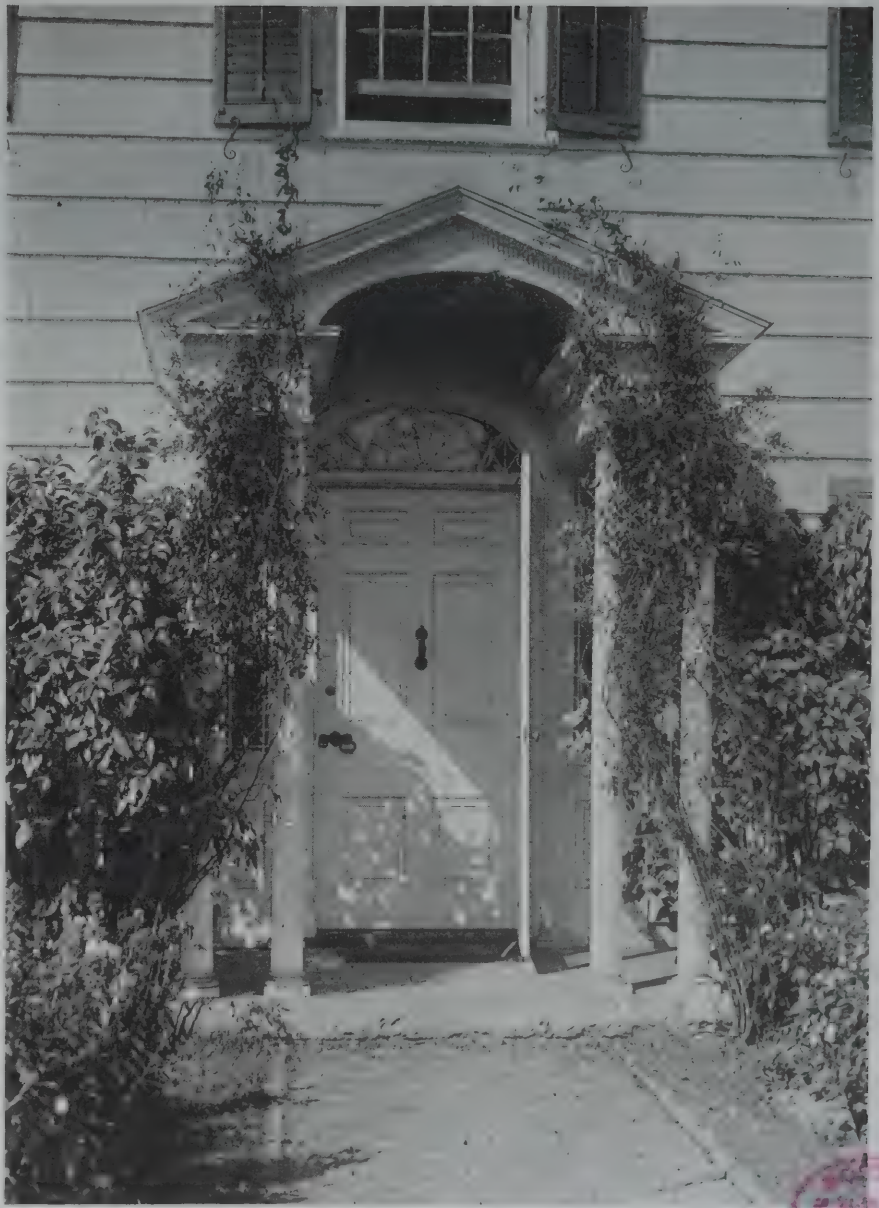


FIRST FLOOR

PLANS, HOUSE OF SEAVEY BATTELLE, ESQ., RYE, N. Y.
ELECTUS D. LITCHFIELD & PLINY ROGERS, ARCHITECTS



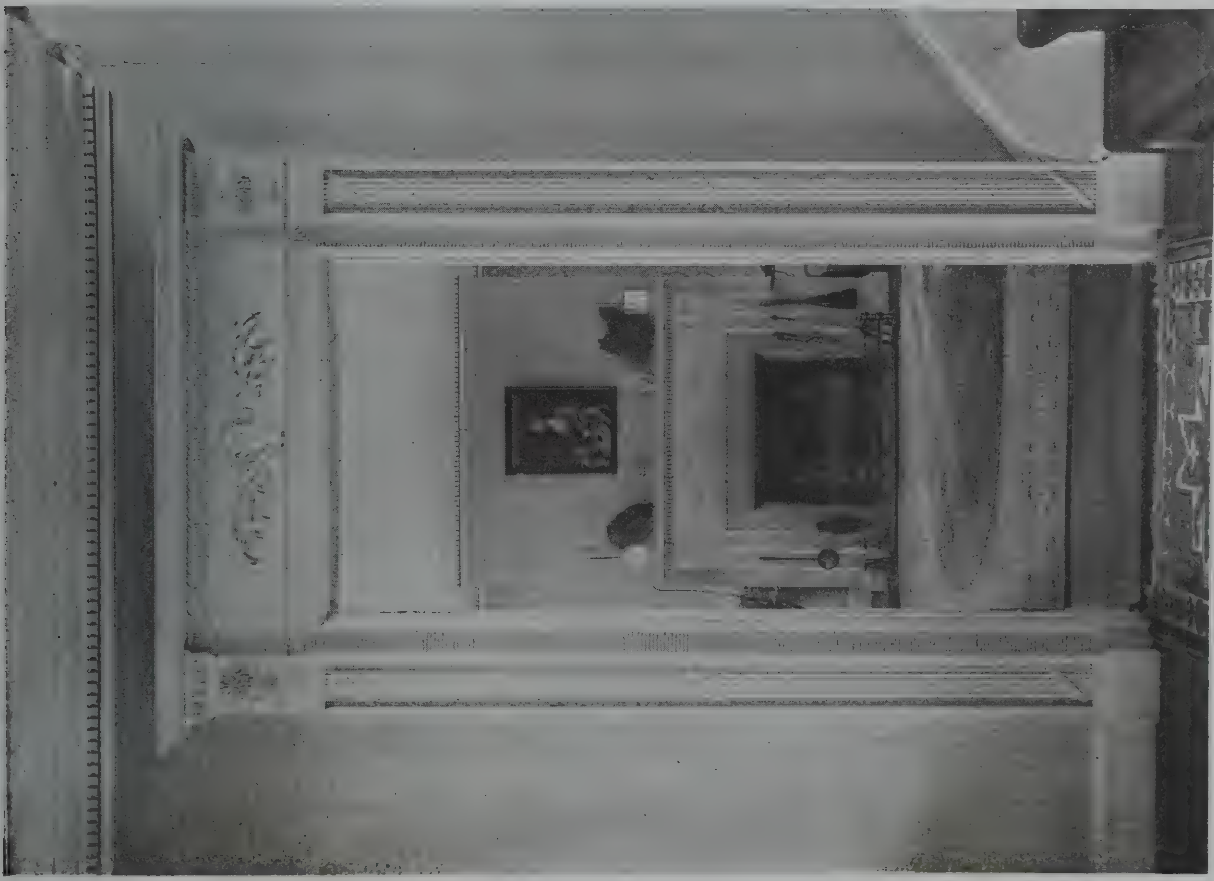
DETAIL IN DINING ROOM



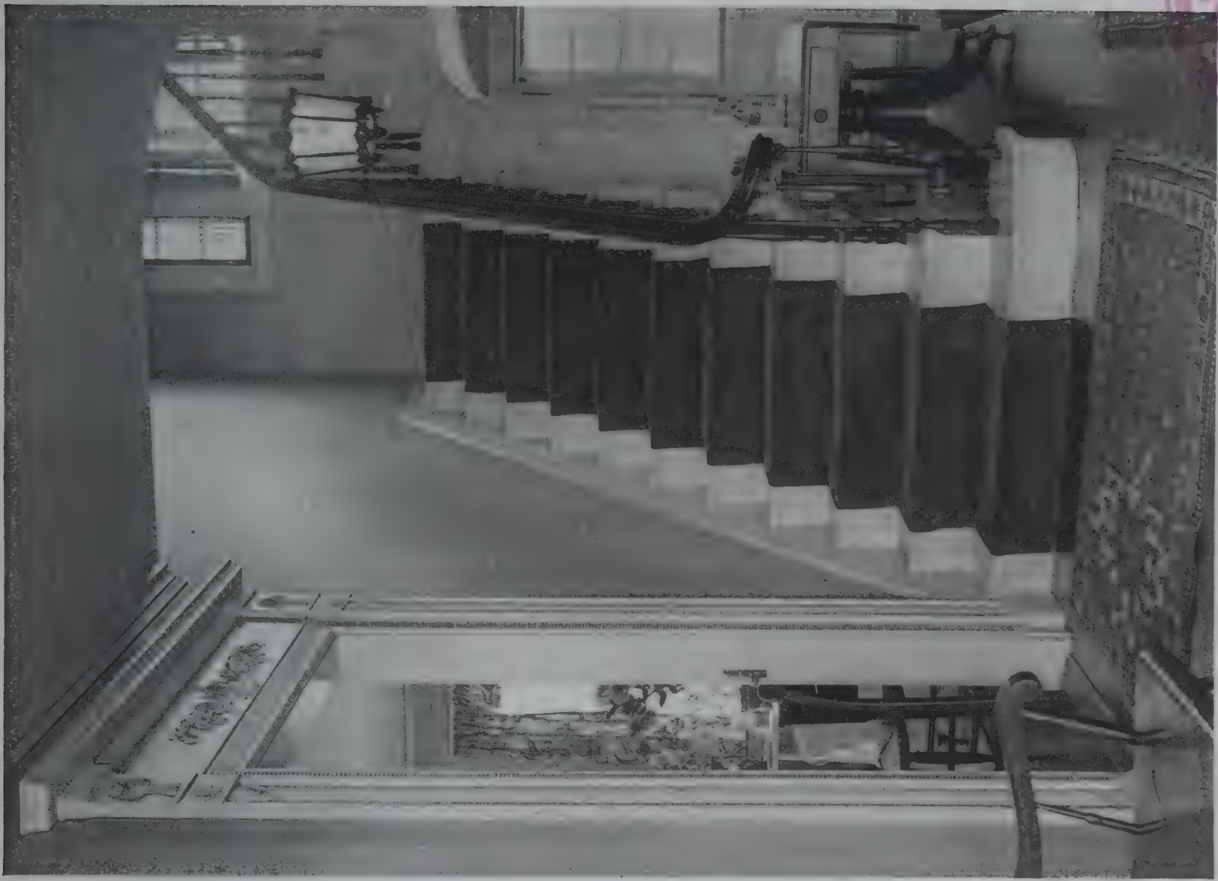
ENTRANCE PORCH AND DOOR

PLANS, HOUSE OF SEAVEY BATTELLE, ESQ., RYE, N. Y.

ELECTUS D. LITCHFIELD & PLINY ROGERS, ARCHITECTS



DETAIL, LIVING ROOM DOOR



MAIN STAIRWAY

HOUSE OF SEAVEY BATTELLE, ESQ., RYE, N. Y.

ELECTUS D. LITCHFIELD & PLINY ROGERS, ARCHITECTS

SMALL BUILDINGS

The Small Schoolhouse

By CHARLES G. LORING

THE "little red schoolhouse" has now become a symbol to the poet and to the politician. To both of these sentimentalists it embodies childhood, democracy, the very cornerstone of our liberties. But the pioneer model is passing; hygiene has condemned it as unworthy.

The historic type, with its dirty outhouse, its stove which roasted one corner of the room and left the others frozen, its bell and rod, its slates and benches, is now as out of date as the well-sweep and the one-horse shay. Yet it should appeal in memory not only to the romanticist but to the modern extremist on standardization. The "floor space available for classrooms" was well-nigh 100 per cent; there were no corridors nor stairs, no administration rooms nor ventilation; no expensive steel or masonry, and no mechanical equipment, except the "airtight" and the kerosene lamp. By theory, its little candle of "efficiency" shone more brightly than that of the most approved million-dollar high school! To the present-day planner, however, the little red schoolhouse is a quaint antique, and its nearest direct descendant, the "portable," is but a makeshift. But even the temporary, portable schoolhouse of one or two rooms has modern plumbing, evenly distributed and easily controlled heating and ventilation, unilateral and ample natural lighting, and its walls and roof are insulated against heat and cold. There are a number of makes on the market, but their justification is to care for an overflow or emergency until more permanent and worthy structures can be erected. At times they supply a definite need.

Summer Street Schoolhouse, Springfield, Vt.
Brainerd & Leeds, Architects

The improvement in social and living conditions and the development of pedagogy constantly modify the grouping of pupils and their accommodations, and the schoolhouse architect must keep abreast or even ahead of the communities he serves. Each new commission calls for an open and a sympathetic mind. The individuality of the problem must be expressed in plan and in elevation. The age and character of the pupils, the school organization and management, the lay of the land and the orientation, the historic background and the present surroundings, are some of the integral but often conflicting elements which must be reconciled and welded into one composition.

Schoolhouses have not yet been officially divided into groups of "large," "medium" or "small," but one of only eight classrooms may serve as a reasonable maximum for the small type. For this group standardization of plan is impracticable, and standardization of the component parts is more limited than in the plants housing over 800 pupils. To the efficiency engineer of the rubber stamp type of mind, *standardization* means one given set of plans for each district with a given population; to the ultra-modernist, *standardization* is anathema, for no two rooms or arrangements of desks should be identical, lest "self-expression" be stifled. But to the army of teachers and school executives, law makers and building officials, architects and mechanical engineers who are working together to improve academic conditions, *standardization* means the coördination of the best practices and true economies. At best the word is dangerous, first because it may be so variously interpreted, and second because it may become a fetish. Too often an outgrown standard becomes a stumbling block, all the more difficult to remove because of its past worth. Flexibility is a far better ideal, for it means adjustment to the individual, to the changing curriculum, and to the growing community.

Public schools with a pupil capacity of 250 or less are built only in comparatively open districts, where land values are not excessive, and where there is no

Lakewood Schoolhouse, Madison, Wis.
Frank Riley, Architect

excuse for skimping the size of the lot. Space for playgrounds is indispensable to the modern ideals of the child's full development, and it serves all the year round as a safe center for the pupils during and after the school term. A generous lot insures ample light and air in the building, it reduces outside fire hazard, and it minimizes the danger to the pupils from accident on the highways or the car tracks; it also affords space for school gardens. In northern climates a building placed over 60 feet from the road means difficult snow removal where janitor service is limited and snowfall perhaps heavy.

The preservation of existing trees wherever possible insures shade in spring and autumn, and it removes the desolate air all too common in many playgrounds. Often an enthusiastic building committee will make a devastating "clean sweep" on the new lot, and later perhaps have to spend money on planting which could have been saved by a little imaginative foresight. A sloping lot is by no means a disadvantage as far as the school structure is concerned. Especially if the grade drops away from the main approach, it permits the basement to be excavated cheaply and allows good windows on one side. It also means that the coal or fuel oil can be delivered by gravity, and the ashes and rubbish removed at a lower grade without a hoist. On gently inclined land it is easy to guard against subsoil water and dampness, and to arrange for sewage and rainwater disposal in districts without municipal sewer mains, where the drainage problem is often serious.

The point of departure which has usually been fixed by the time the architect's services are called upon is the number of classrooms. The available funds are too often meager, and the problem resolves itself into a series of compromises between size and quality. If the appropriation is limited and the seating capacity and accessories definitely prescribed, then the bids of the contractors and not the wishes of the committee or board will be the final arbiters of whether the construction shall be fireproof or second class, whether the exterior cornice shall be of stone or metal, whether the type of heating and ventilation shall be selected for lowest first cost or for lowest cost of upkeep. In other words, shall each item be "the best" or "good enough"? This is an expression of the axiom that if two of the three variables—Cost, Size and Quality—are fixed, then the third is determined also. If instead of the first two being prescribed the size and the character of the new schoolhouse are the elements definitely established, then the open market will settle the cost, whatever sum was voted in the town meeting!

For the schoolhouse with eight or more classrooms, the two-story type is the least costly to construct and to heat, and the lack of a visible roof with its expansive framing and covering of tile or slate is not a serious drawback. For the smaller school, however, especially where generous ground area is not an extravagance, the one-story type with a minimum basement (where on level land), and the composite two- and one-story type (where on sloping ground), are more elastic and are admirably adapted to the needs of elementary and grammar school pupils. When there are but few classrooms, a visible roof is desirable and not extravagant, and with a limited area there is no need of trick skylights, leak-inviting valleys and other trouble breeders common in northern climates in the large, compact "bungalow" schools which are so favored.

The plan may be developed step by step, once the number of classrooms is determined. Starting with the classroom as the principal unit, then the size of the desks, their number and the uses of the rooms will determine their floor area. Considerations of lighting, economy in framing, and the shape of the building as a whole will fix the width and breadth of the rooms. Next the orientation of the units themselves, that is the direction in which the windows are to face, will be the dominant influence in grouping them into the block plan. The sizes and locations of the windows are as nearly standardized throughout the country as varying local conditions will permit, and in some states definite regulations are in force, as for instance that the clear area of glass shall not be less than one-fifth of the floor area, and that the tops of the windows shall be not more than 8 inches from the ceiling. Experience and logic forbid arched windows in classrooms, and the pupils' eyes are best safeguarded by unilateral light-

West Terrace Schoolhouse, Claremont, N. H.
Brainerd & Leeds, Architects

ing where the windows are all on their left and preferably ranged nearer the back of the room than the front, and there are other like considerations.

Classrooms opening toward the north are not satisfactory, because of the reduced quantity of natural light and because there will be no purifying direct sunshine during the winter. When opening due south they are exposed to too much glare every day and to too much heat at the beginning and at the end of the school term. Classrooms are better faced east or west or, if possible, swung a little to the south. Assembly halls, drawing rooms and offices are none the worse for a northern exposure, but kindergartens in the northern states should have all the sunshine there is, windows on more than one side, and bay windows in addition whenever possible.

In the small, suburban school the danger from fire panic is at a minimum, and the question of fireproof construction is rather a question of investment and replacement than of safeguarding the lives of pupils. From either point of view, however, the boiler room should be of first class construction, with fire-retardent construction elsewhere in the building. The exterior walls should be of masonry, since the relative costs of masonry and of wood are drawing closer together, and the bill for painting and repairs on wooden walls, to say nothing of the fire risk, will in comparatively few years counterbalance the original saving. Furthermore, the schoolhouse should be an object of pride to the community, and teach unconsciously to the pupils a standard of permanent worth, and brick gives a more monumental impression than clapboards or certain other materials.

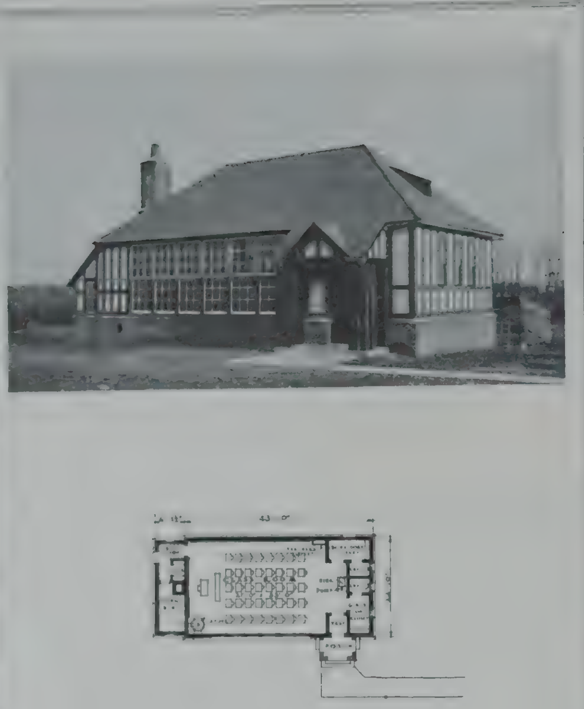
In the small schoolhouse, where the architect's fee will barely cover the cost of his services, there is a straight challenge to his professional standards and artistic ability. To the neighbors the little two-room school is as important as a magnificent junior high school is to the large city—perhaps more so, as there are fewer civic buildings for them to be interested in, and there exists less opportunity for them to see architecture at its best. The problem in design is definite, and just because expensive materials and elaboration of detail are beyond the budget, there is all the more stimulus to refine the proportions and to select textures and colors carefully so as to produce a diminutive picture of simple, rural quality. Sometimes the funds will permit an informal arrangement with wings and gables. In other cases, where stringent economy demands symmetrical compactness, the prim Colonial buildings of the past, from Virginia to Maine, lend themselves almost intact as models.

Kensington Schoolhouse, Great Neck, N. Y.
Wesley Sherwood Bessell, Architect

Jefferson Schoolhouse, Sacramento, Cal.
Dean & Dean, Architects

The classroom itself must usually be more flexible than in the metropolitan school, where each room has its specialized purpose, and where the large number of pupils allows systematic rotation from laboratory to home room or from domestic science suite to library. In fact the rural pupils must often be placed with two or more grades in one classroom. In this case the accepted standard of 8 feet from the front desks to the wall back of the teacher is too small, since space is needed for a dozen or more pupils to gather between the "home" desks and their teacher for recitation purposes. Alcoves are sometimes added, where small groups may receive instruction in domestic arts, manual training or agriculture, while the teacher supervises a study group at the same time. Every inch of area is important.

The floor space may be profitably enlarged to accommodate movable desks, for then the classroom is still more adaptable to varied uses. Movable furniture is especially desirable where two classrooms are divided by folding doors, so that a hall can be created in which the entire school can be assembled at one time, or for the use of grown-ups out of school hours. Where there are half a dozen classrooms, a separate hall can often be afforded, but it must be designed for many uses. The walls may be of sand lime brick which are a light gray, cost no more than common brick, and do not absorb light. Such a wall is not only self-supporting but will carry the concentrated loads of the roof trusses. The surface will not be defaced as easily as plaster by games and basketball, and if it does become soiled in time it can be painted over. A 5-foot dado of smooth, buff, face brick or of salt-glazed brick adds little to the expense, improves the appearance of the room, and can be readily washed. A concrete floor, laid over 8 inches of cinders or coarse gravel to safeguard against dampness and covered with



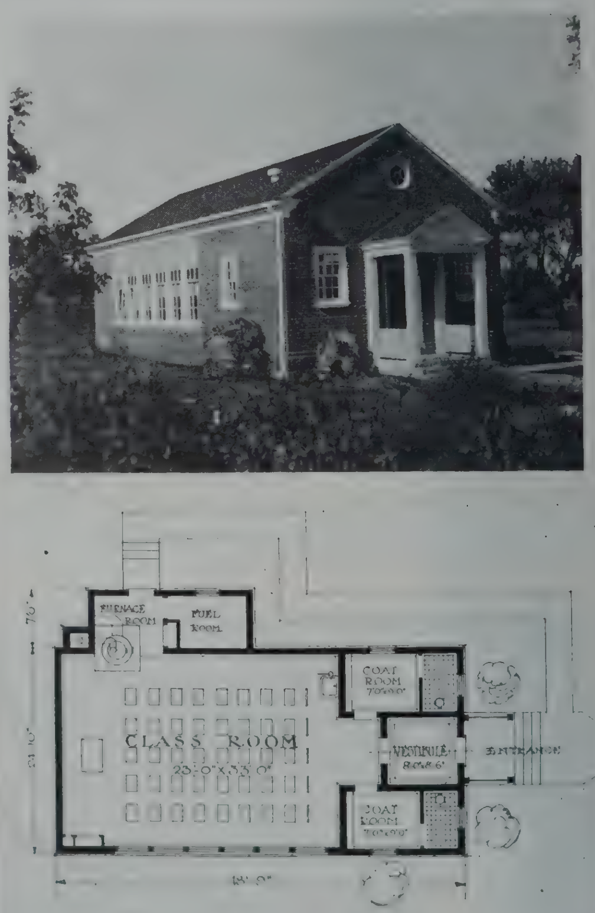
ONE TEACHER SCHOOL
STATE OF DELAWARE
GUILBERT & BETELLE
ARCHITECTS
NEWARK, N. J.

linoleum, gives a clean, quiet surface for gymnasium or auditorium; it is much less expensive, though not so good, as an upper and under floor of wood, laid on screeds over waterproofed concrete.

A small recessed platform raised about 2 feet is needed for assemblies, club meetings and elocution, and this may be extended for dramatics by movable sections of platform and a curtain stretched across the hall. A good sized storage room is needed for portable chairs and floor racks and for athletic and sport equipment. If there is no special room for cooking classes, a small kitchenette for use at lunch time will be found well worth while, and if this adjoins the hall it will be very popular for serving supper at dances, for evening meetings of the Parent-Teachers' Association or the Ladies' Auxiliary. If the hall is so arranged that it can be reached from the outside without opening up the rest of the building, the general utility of the plant will be increased.

Where there are enough pupils to justify the installation of showers and lockers in connection with the gymnasium and playgrounds, it will be a great advantage if these also can be reached and readily supervised without allowing access to the classrooms. The Noonan School at Winchester, Mass., is an example of the adaptation of an academic plant to neighborhood needs. The hall is built for either games or gatherings. At the end opposite the stage are an entrance and corridor which can be shut off from the classrooms. At the center of the outside wall is a direct exit, and back of the stage is the main door to the kindergarten room. This room is unencumbered by fixed desks, and has its own toilet, so that it can be used as an anteroom for public speakers or as a dressing room for school plays. Off the teachers' room is an alcove with gas stove and sink which is conveniently placed next the hall. The showers for the girls are next to one outside entrance, and those for the boys beside another, and both of them can be used during the summer months by the children. There are a full-sized ball field for the older pupils, and a separate sand-pile and playground for the use of the kindergarten pupils.

Every "schoolhouse expert," whether superintendent, janitor or architect, has his pet theory on what to do with the children's overcoats. There is the wardrobe with counterbalanced doors which slide up or with pivoted doors which slip in, and the wardrobes may be placed in the classrooms or in the corridors, according to the relative needs of control and distribution; there are lockers—and here the battle becomes vigorous over the merits or demerits of keys versus combination locks; there are coat rooms adjoining each classroom (which are expensive on account of requiring floor area), and group coat

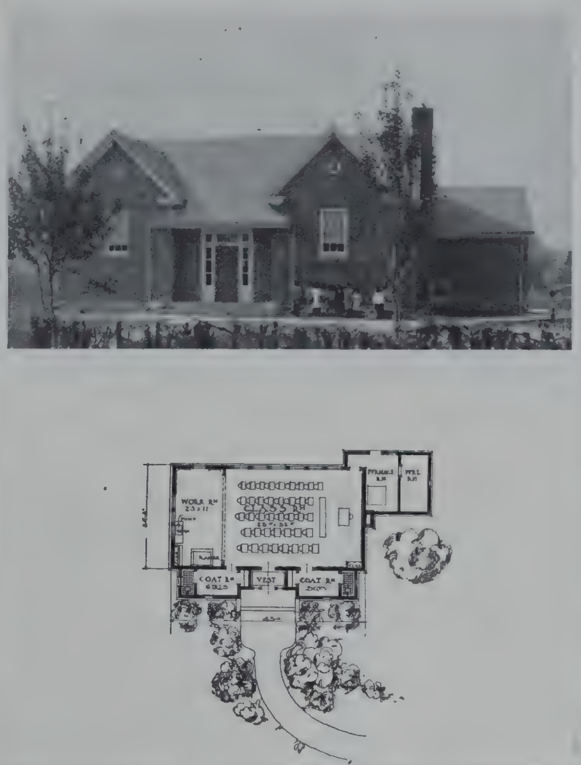


ONE TEACHER SCHOOL
SEAFORD . DELAWARE
SCALE
GUILBERT & BETELLE
ARCHITECTS
NEWARK NEW JERSEY

rooms in the basement (which involve janitor control). But whatever type is selected in the compromise between cost and administration, those for the small country schoolhouse deserve especial study because the pupils come from a greater average distance than in the city, and over muddier walks. Umbrella hooks and drip pans, ventilation and drying equipment for coats, and bins for overshoes are accepted as a matter of course, but foot warmers are now considered unsanitary. The school's location has much to do with it.

The mechanical equipment often presents special problems; water mains and sewers may be non-existent, the best fuel hard to secure, and the electric service unstable. As one member of a building committee sardonically remarked, when asked if the current was alternating or direct, "I guess you'd call it 'alternating'; two days on and one day off!"

In discussing a one-room school, J. O. Betelle says: "From the standpoint of first cost it was possible, with the funds available, to secure the very best systems of heating, running water for drinking purposes, and the installation of water closets. It was not this first cost, however, that was the deciding factor, but rather the attention and expense that would have been necessary for proper maintenance after the systems had been installed. It must be realized that these small buildings receive no attention during the holidays, or from Friday until Monday, and that no heat is maintained in the buildings during these periods. Even if it were decided to keep heat up at all times during cold weather, so that running water systems could be installed, heavy snows and impassable roads would often make it impossible to reach the school buildings for days at a time; the freezing up of the plumbing systems would naturally be the result. After much consideration and investigation it was decided to install chemical toilet fixtures inside the building and reached through the coat rooms. For the water supply system it was decided to install a hand pump over a sink in the workroom. The water in the pump will be sufficiently below grade to prevent freezing, and it is in a convenient location for use both for drinking purposes and for instruction purposes in connection with domestic science lessons. For the heating, a jacketed stove located in an alcove, or a furnace placed in a small room outside of the classroom, was decided upon. It is realized that the jacketed stove will heat and ventilate the classroom with considerably less coal than the furnace. It is admitted, however, that the jacketed stove does not give the required 30 cubic feet of air per minute per pupil, but upon the other hand it consumes less fuel. A stove in the classroom, with



ONE TEACHER SCHOOL
STATE OF DELAWARE.

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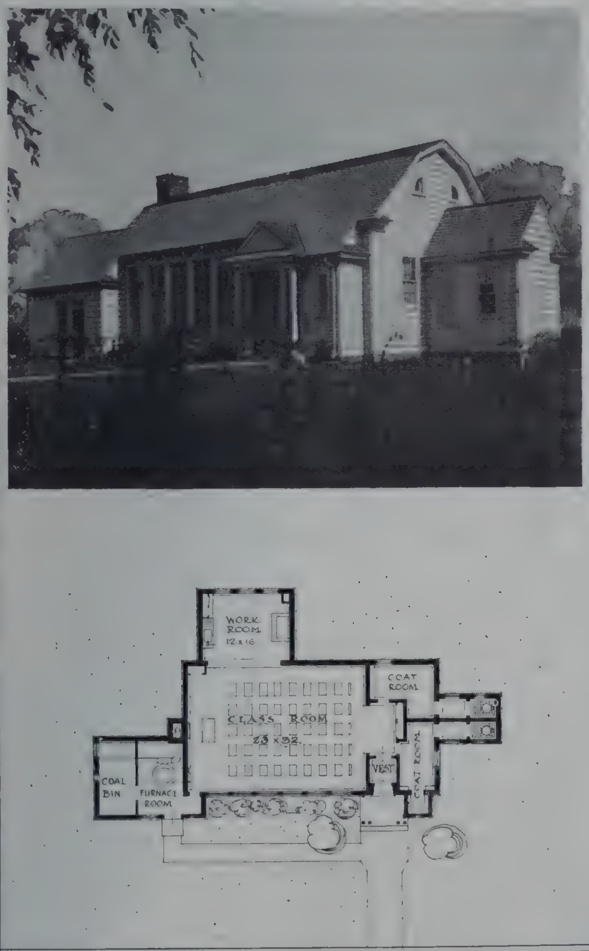
ARCHITECTS
NEWARK N J.

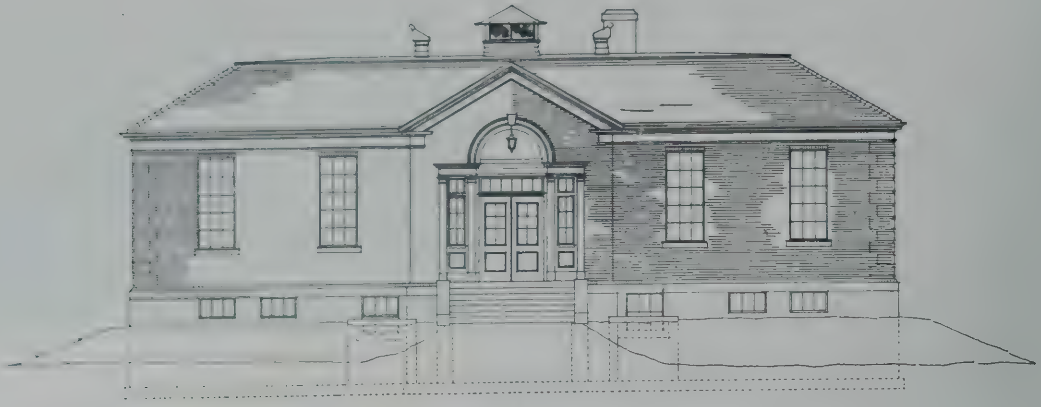


ONE TEACHER SCHOOL

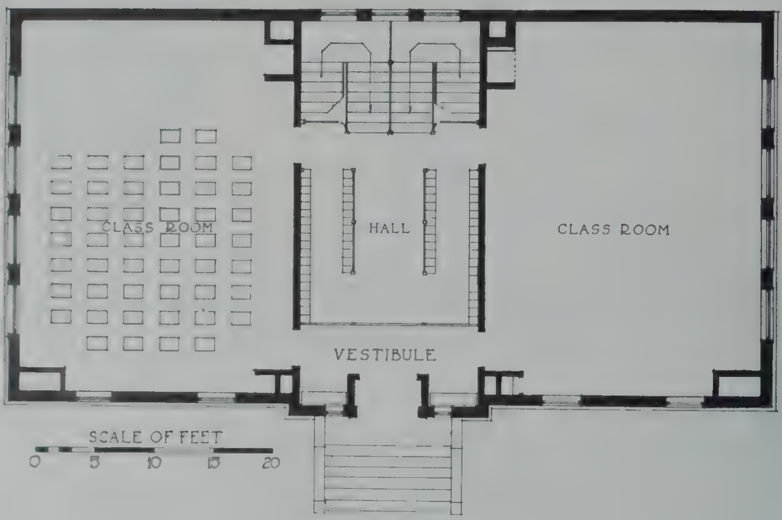
Scale:

CHRISTINE . DELAWARE

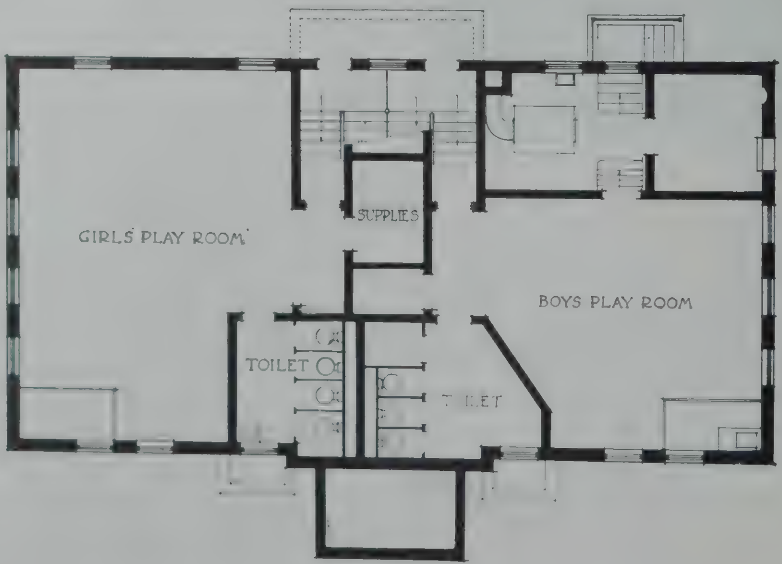
GUILBERT & BETELLE
ARCHITECTS
NEWARK, NEW JERSEY



FRONT ELEVATION



MAIN FLOOR



BASEMENT

TOLMAN SCHOOLHOUSE, STOUGHTON, MASS.
CHARLES G. LORING, ARCHITECT

BOSTON PUBLIC LIBRARY

Grade Schoolhouse, Mansfield, Mass.
Ritchie, Parsons & Taylor, Architects

Mystic Schoolhouse, Winchester, Mass.
Ritchie, Parsons & Taylor, Architects

the attending noise, confusion and dust which are caused by the putting in of coal and the removal of ashes, is very much of a handicap to good instruction work. A furnace in a separate room, where the firing and the removal of ashes will not interfere with the classes and which will provide the proper amount of ventilation, will be installed when the community is willing to provide the additional amount of fuel to obtain more satisfactory results."

One example of government standardization applied to mechanical equipment is this table listing the minimum number of toilet fixtures permitted by the State of Massachusetts. The ratio has been established a number of years, and has been proved reasonable and satisfactory in operation:

	Water Closets			Slabs	
Pupils	Girls	Boys	Urinals	Feet	Inches
50	3	2	2	2	8
100	4	3	4	5	4
200	6	4	6	8	0
300	9	6	8	10	8
400	12	8	10	13	4
500	14	9	12	16	0
600	16	10	14	18	8
700	18	11	16	21	4
800	20	12	18	24	0
900	22	13	20	26	8
1,000	24	14	22	29	4

The cost of a proposed small schoolhouse cannot be established by rule of thumb, as it was in the "good old days before the war." Costs per classroom or cost per square foot are but guesswork, and estimating cost per cubic foot is only a slightly better method. For the same set of plans and specifications the bids in North Carolina and in New York might vary 40 per cent. As the construction can be completed so quickly, the time of year plays a greater part than in a large building. Cost per cubic foot is greater in a $14,000 plant than in a $400,000 plant of the same grade of materials in the same town. On the other hand, the small building is out in the country and may be built by contractors who work on the job themselves, have no overhead, and are untroubled by union wages, surety bonds, liability insurance and building fees. If a similar schoolhouse has been put up recently in a neighboring district, the prices on the new plant may turn out to be about the same—and then again they may not. The safer way is to get close approximates from an old fashioned local builder and at the same time from a larger contractor not too far away.

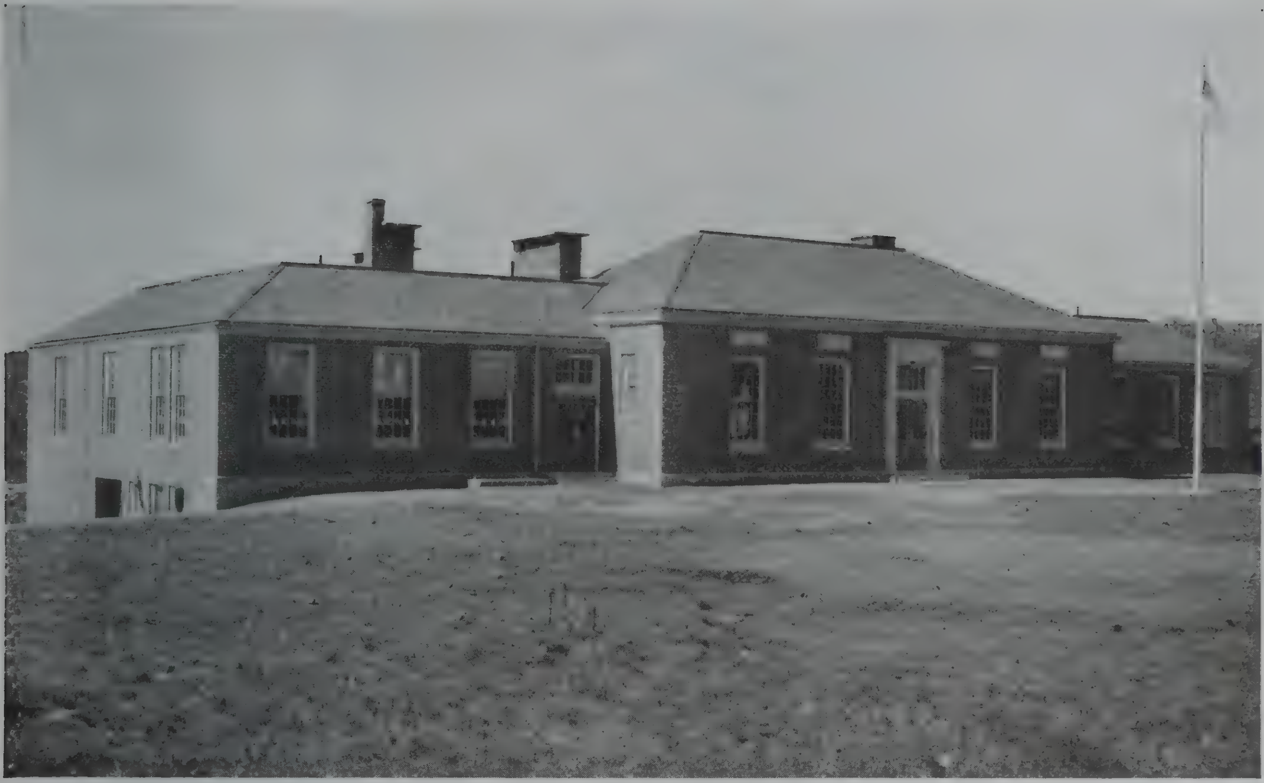
The design of small schoolhouses, despite the ignorance of architectural merit in the country districts, has advanced greatly, due in no small measure to the efforts of the United States Department of Rural Education and to bureaus in many of the states which are eager to help with printed bulletins and with personal advice in individual cases. The progress in Delaware and in California has unusual and interesting features and, occurring on the opposite coasts of the country, indicates the general improvement. Some six years ago in Delaware the realization became acute that the citizens were handicapped by a statewide inferiority in schoolhouses compared to their neighbors in Maryland, Pennsylvania and New Jersey. The buildings were practically all small, from 50 to 100 years old, and unfit. The population was thinly scattered, none too wealthy, and contained many negroes which complicated the situation. A complete renovation was needed, and the outstanding individual in the crusade was Pierre S. du Pont. The laws affecting education and schoolhouses were overhauled and codified to enable the introduction of decent standards, the tangible property was painstakingly appraised, new sites intelligently selected, and new plans scientifically prepared. To assist the investigations before funds had been voted, and then to overcome reactionary objections and to lighten the financial burden, Mr. du Pont gave over two and a half million dollars. The bulk of the donation will be spent in districts which raise their quotas by bonds to the extent of 5 per cent of the assessed values of property. The foremost talent was employed in the investigations, and the results will be of national benefit wherever one- and two-teacher schools (note the classification) of the least expensive form are required. One formula developed relates to the sizes of the lots to be acquired. As the teacher usually has to act also as janitor, the upkeep of the grounds was a serious problem, and so two acres was set as the limit for a one-teacher school, three acres for a two-teacher school, and four acres for larger buildings. The plans for the small schoolhouses are frankly economical rather than ornamental, but despite the fact that wood is generally used for the exterior walls, the various designs which are being experimented with are expressive of the purpose of the buildings, and have charming character.

In California there has been no statewide organized development, but owing to the rapid increase in wealth and the untrammeled mental attitude of the Coast architects, the development of schoolhouse architecture has been both brilliant and original. The state inherited the broad, spreading plan, for the earliest schools were those connected with the Missions and were held in rooms grouped about *patios* and under arcades. The Franciscan Fathers built one-story structures because of the restricted material and scarcity of labor, but unconsciously they chose a form peculiarly adapted to the unknown country in which they settled, for the adobe structures were well suited to the climate and the quite unforeseen earthquake conditions. Years later, after the Spanish influence had waned and the Spanish traditions of design were but poorly understood, there developed a demand for "Mission" architecture, and through lack of knowledge and sympathy some extraordinary monstrosities were perpetrated. With improved training and understanding, in the principles as well as in the details of design, the fundamental motifs have been retained, but their treatment has been adapted to express the present social and scientific needs.

The distinguishing feature of the small school in California, though by no means all the recent buildings are typical or satisfactory, is the open plan, all on one floor. Where in the East the one-story building is usually rectangular in form, with the circulation limited to interior corridors or a central hallway, the California model tends toward being an elongated mass with wide-flung wings. Arcades take the place of corridors and *patios* of hallways, but these delightful features would be impossible in regions cursed with blizzards and zero weather. The cost of such buildings, as compared to that of the other extreme typified by those being constructed in Delaware, can be judged only relatively or by the comparison of quantity surveys which would eliminate the variable elements, local prices for labor and material, which of course fluctuate constantly.

As education must be general to preserve the strength and insure the survival of our democracy, so must "good architecture" be general if it is to attain full appreciation and a truly national expression. And insofar as the training in the small schoolhouse is neglected, and insofar as the design of the small schoolhouse is slighted, just so far will the education of all the people and the true understanding of the fine art of building miss full realization.

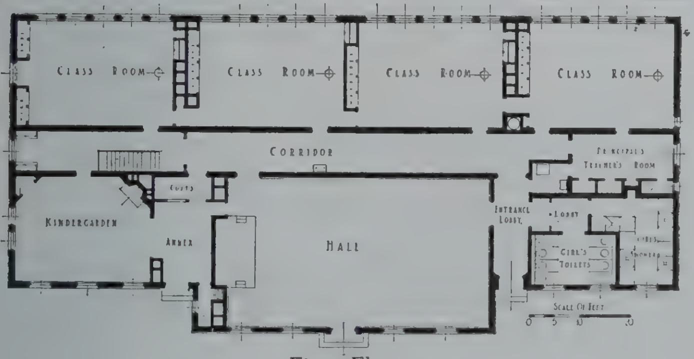
Rear View, Noonan Schoolhouse, Winchester, Mass.
Charles G. Loring, Architect



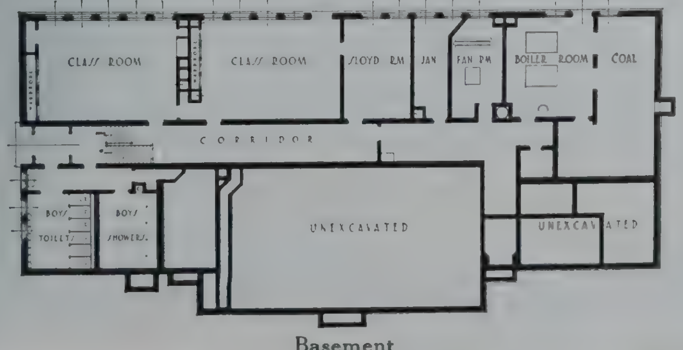
NOONAN SCHOOLHOUSE, WINCHESTER, MASS.
CHARLES G. LORING, ARCHITECT

ONE of the best small schoolhouses completed during the last two years is this at Winchester, Mass. The exterior shows a simple design, executed in the Colonial style, four large and well proportioned windows and a door occupying the center of the front facade of the building. Two low wings balance and give emphasis to the center portion. Situated on a steeply falling grade, the front of the building is set sufficiently low to necessitate only two steps from the entrance yard to the first floor level, and under the rear of the building on a lower grade is a well lighted basement which contains two standard classrooms, a sloyd room, the boiler, fan, coal, janitor and storage rooms, and the toilets and showers for boys which adjoin the side entrance and can be shut off from the main building during periods when the school is closed.

The main floor contains a hall arranged to seat 270, with stage, entrance lobby and special exit, which can be used independently of the rest of the building; four standard classrooms, each with wardrobe, bookcase and teacher's closet; kindergarten suite composed of the main room, with light on two sides and a fireplace; an annex which can be separated by folding doors, a coat room, toilet, girls' showers, dressing rooms and toilet which can be used independently of the rest of the building for afternoon or summer athletics; principal's office with supply closets, private toilet and utility room with gas stove and sink for the



First Floor



Basement

FORUM SPECIFICATION AND DATA SHEET — 41

Noonan Schoolhouse, Winchester, Mass.; Charles G. Loring, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class; masonry walls; interior frame construction; boiler room and staircase hall, fireproof.

EXTERIOR MATERIALS:
Red brick; cast stone trim; wooden cornice and door frames.

ROOF:
Slate.

WINDOWS:
Wood, double-hung.

FLOORS:
Maple in all classrooms and corridors on main floor; cement on concrete in basement.

HEATING:
Steam, with gravity type of ventilation.

INTERIOR MILL WORK:
North Carolina pine.

INTERIOR WALL FINISH:
Plaster, painted.

NUMBER OF PUPILS:
245.

APPROXIMATE SQUARE FOOTAGE OF BUILDING:
8,768.

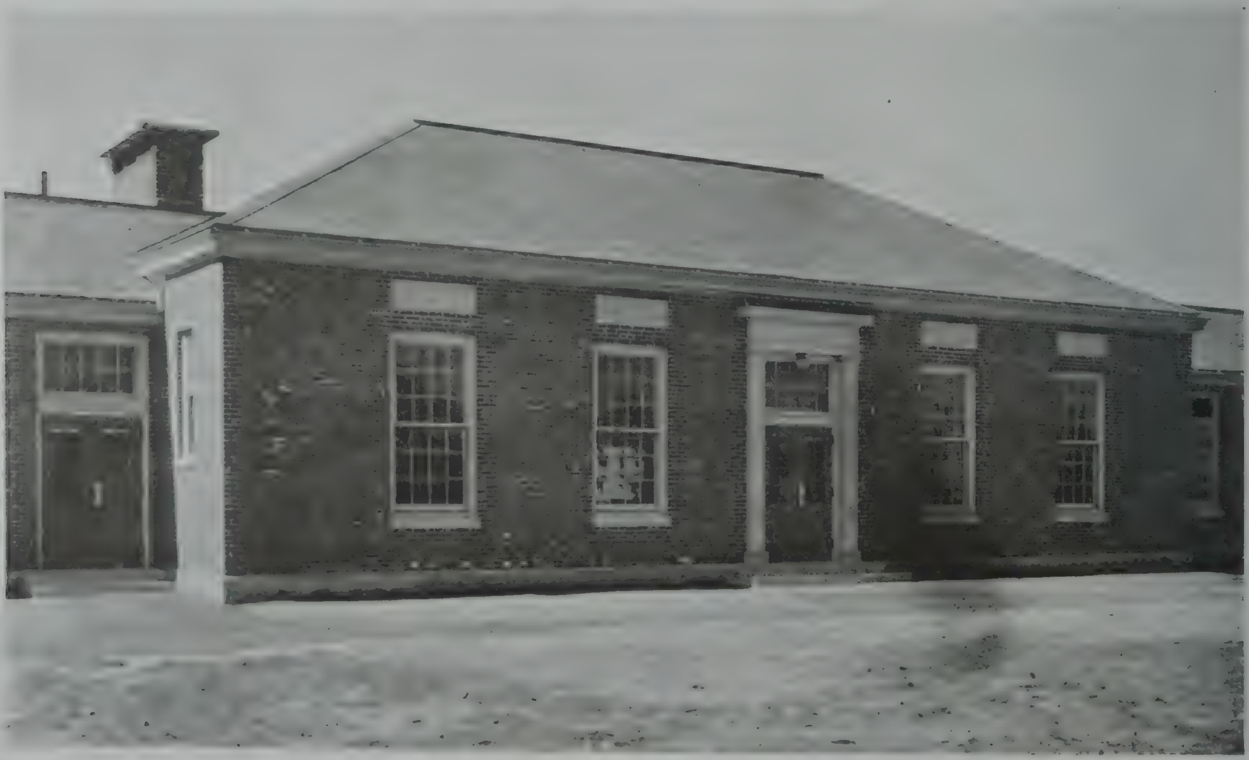
TOTAL COST:
$82,531.

CONTRACT LET:
October 3, 1923.

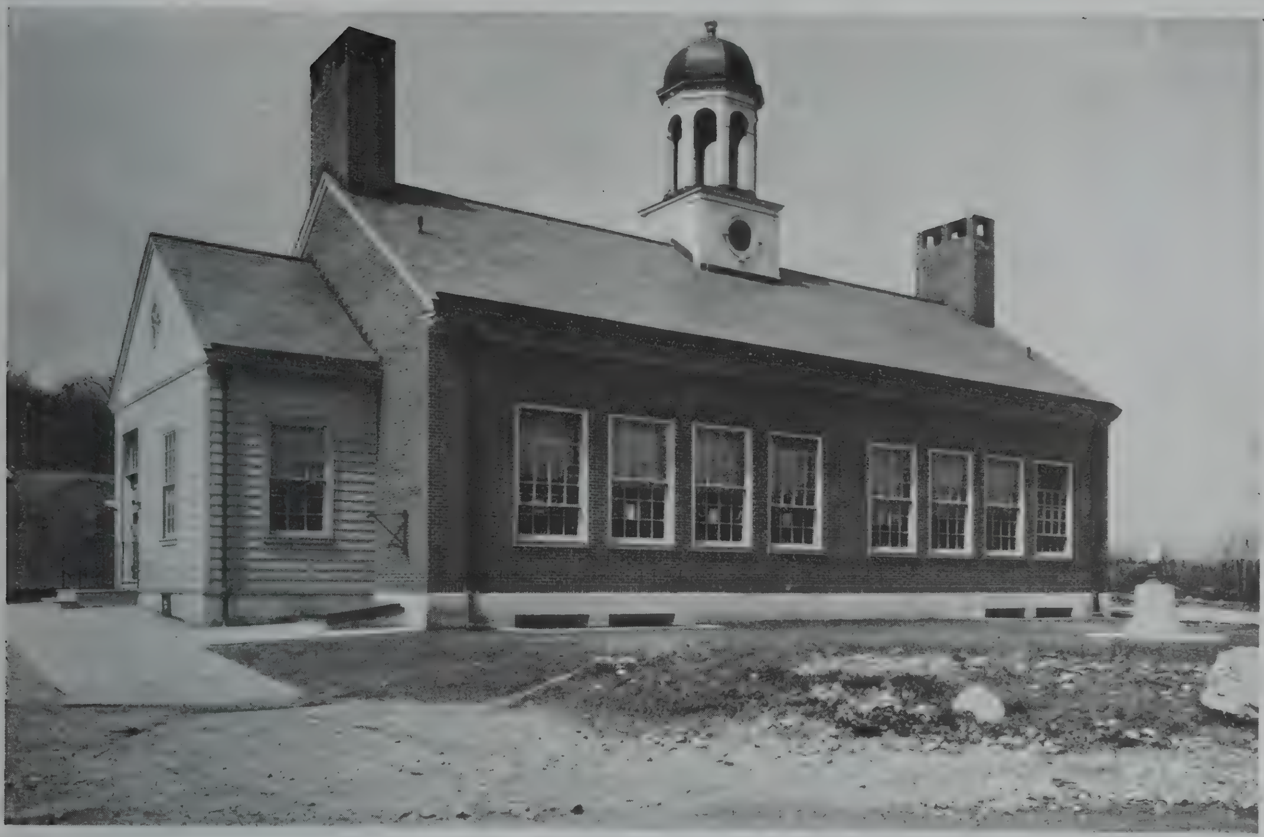
preparation of teachers' lunches or suppers in connection with the auditorium when used by the public.

The building is one story high to the east and two stories high to the west, where the grade falls away. It has three entrances at each level, which allows any section of the building to be used independently, and affords the maximum protection against panic. Owing to the fall in the grade, fuel can be dumped into the coal vault from the driveway on the upper level, and the ashes can be removed to the driveway on the lower level below the boiler room floor. The kindergarten playground lies to the south of the school, and the boys' athletic field on the upper level.

This schoolhouse, although legitimately falling into the class of small schoolhouses, is really considerably larger than might be judged from the one-story front elevation. The rear elevation, which is two full stories in height and extends the entire length of the building, gives the appearance of a much larger schoolhouse than it actually is. The low hip roofs with simple white painted cornices accentuate the excellent Colonial character of the design.



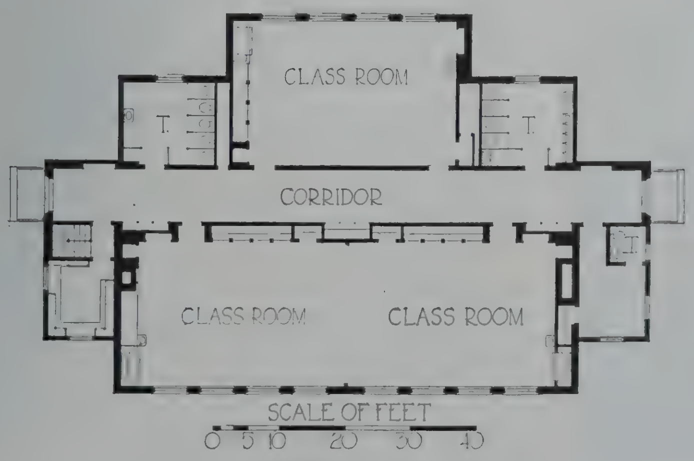
Detail, Noonan Schoolhouse, Winchester, Mass.



WARD 7 SCHOOLHOUSE, MELROSE, MASS.
CHARLES M. BAKER, ARCHITECT

IN the Ward 7 School at Melrose the architect has succeeded in producing an unusually well proportioned and architecturally attractive small schoolhouse. The exterior walls of the main building are of red Harvard brick, laid herringbone; flat brick arches are used for the window openings, and wood trim, painted white for the window frames, cornices and belfry, while interesting entrance wings on either end of the building are constructed of clapboards, painted white. This combination of wood and brick gives a very pleasant and informal effect to the design. All of the windows are well proportioned and have small panes of glass. Simple iron railings protect the low steps at the two entrance doors to the schoolhouse. Above these doors pediments formed of flat siding follow the line of the roof at a slightly lower level, and are broken by bull's-eye windows of Colonial design. The well proportioned belfry repeats on the two outer spaces of its base bull's-eyes similar in size and design. These areas instead of showing glass divided by muntins are filled in with louvers, making it possible to utilize the spaces in the base of the belfry or cupola for ventilation purposes. The belfry itself is octagonal in shape, with the tall, thin arches of each side crowned with a bronze-covered mosque-like roof. The scale of this belfry, in comparison with the proportions of the building itself, is unusually successful. Eaves mouldings and longitudinal cornices, made of wood, painted white, further accentuate the Colonial feeling of the design and add to its refinement and dignity.

The simple plan shows a center corridor 8 feet wide, extending from one end of the building to the other, connecting the two entrance doors. At one end of this corridor are located stairs to the cellar and a school supply storage



Main Floor

FORUM SPECIFICATION AND DATA SHEET — 42

Ward 7 Schoolhouse, Melrose, Mass.; Charles M. Baker, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class.

EXTERIOR MATERIALS:
Water-struck brick, backed with terra cotta blocks.

ROOF:
Slate.

WINDOWS:
Wood, double-hung.

FLOORS:
Generally pine; terrazzo for toilet rooms; cement in basement.

HEATING:
Steam, thermostatic regulation.

PLUMBING:
Open; enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting; clocks, and fire alarms.

INTERIOR MILL WORK:
Hard pine.

INTERIOR WALL FINISH:
Plaster, covered with burlap in some rooms.

INTERIOR DECORATIVE TREATMENT:
Painted walls; gray stained woodwork.

NUMBER OF CLASSROOMS:
Three, arranged for expansion.

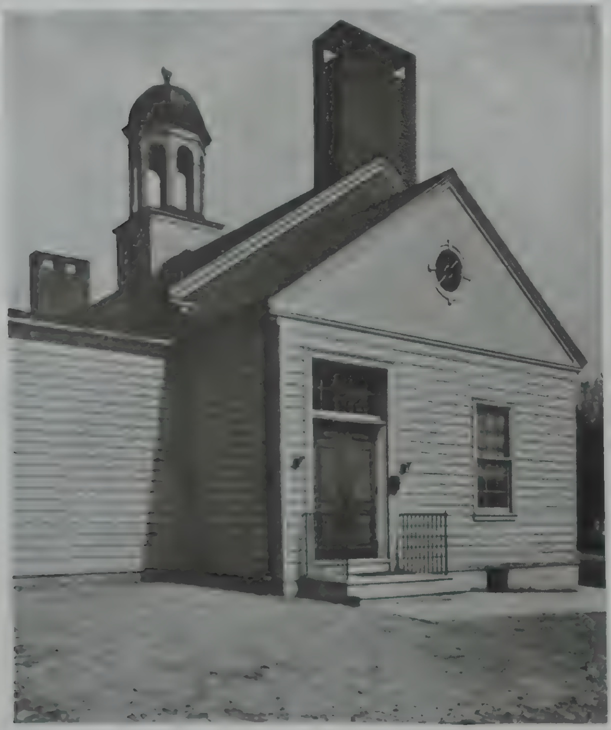
NUMBER OF PUPILS:
120.

APPROXIMATE CUBIC FOOTAGE:
114,285.

COST PER CUBIC FOOT:
42 cents.

YEAR OF COMPLETION:
1924.

room, while at the other end of the corridor is a small teachers' retiring room, with connecting toilet. On the front of the schoolhouse are two classrooms, each 22 feet wide by 32 feet long. Separating these two classrooms is a folding partition, which, when pushed back against the side walls, gives one long classroom, 64 feet in length. Each of these classrooms accommodates 40 pupils, which, together with a classroom similar in size at the rear of the building, provides for 120 pupils. Opening off the main corridor, one on one side of the rear classroom and one on the other, are located a girls' toilet and a boys' toilet. Each classroom is properly lighted from four good sized windows on one side of the room.

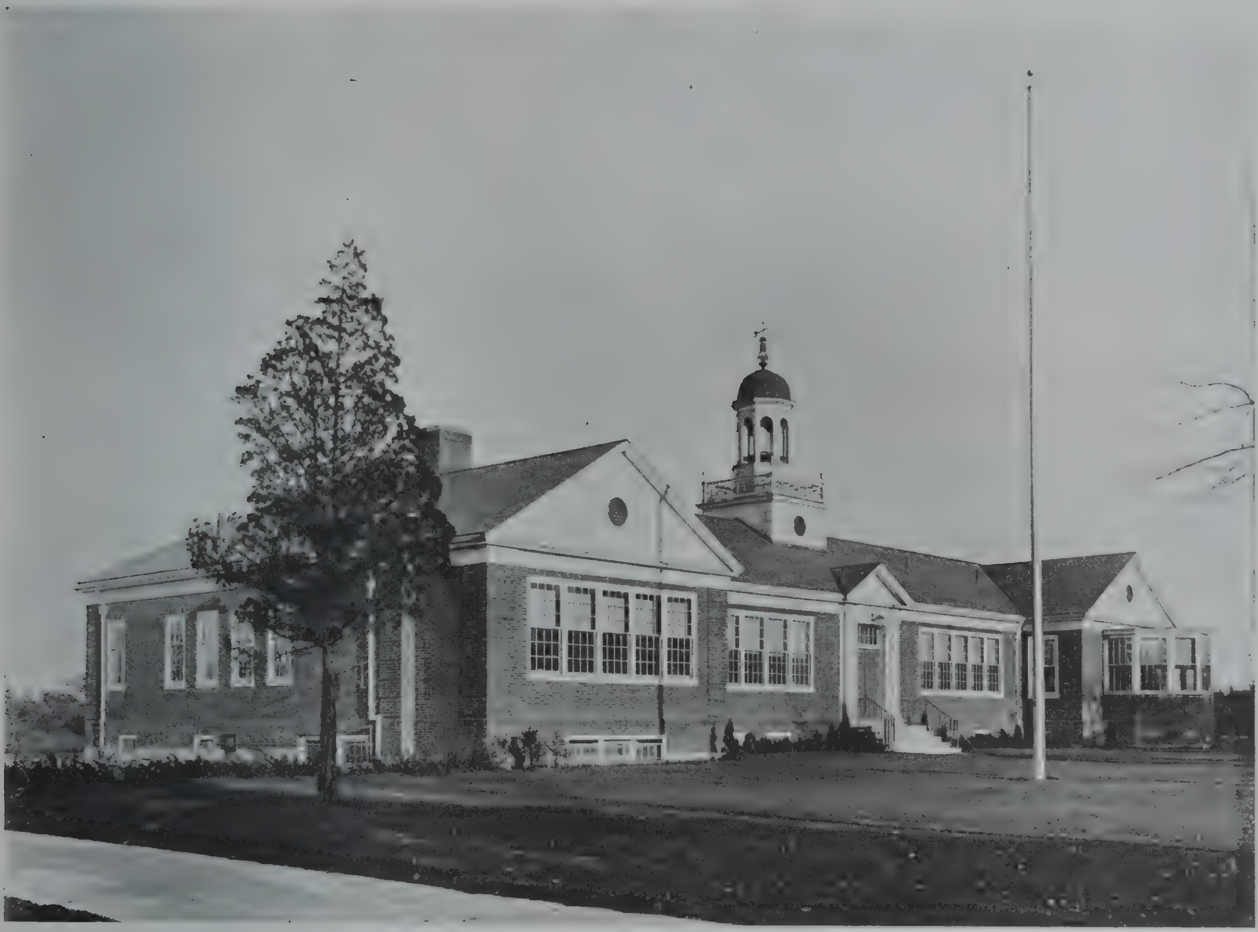


Detail, South Entrance

The introduction of long wardrobes 2 feet, 6 inches deep and 12 feet, 6 inches long, provided with shelves and clothes poles for the pupils in each classroom, is a convenient and practical arrangement for taking care of the outer garments of the pupils

It would be of inestimable value as an incentive to a greater and more fundamental appreciation of good architecture, as well as an incalculable aid in the development of good taste, if every small town throughout the country could boast of at least one schoolhouse, no matter how small, of as good architectural quality as is this Ward 7 Schoolhouse. Unfortunately, most of the schoolhouses, large as well as small, erected during the last quarter of the nineteenth century were abominations as far as convenience of plan, proper sanitary arrangements, adequate ventilation, proper lighting and exterior architectural character were concerned. Beginning with the twentieth century, the study of schoolhouse plan and construction was taken up seriously and conscientiously. The problem was considered entirely from the point of view of the health, welfare, convenience, mental and moral development of the pupils. Because of this continued study and research, American school buildings are today recognized throughout the world as the finest examples of this very specialized type of architecture.

The Ward 7 Schoolhouse in Melrose, in plan as well as exterior design, is an excellent example of a successful small and inexpensive schoolhouse, to the design and plan of which much thought and study have been devoted, with resulting architectural dignity and distinction. The school committees and municipal governments in the smaller cities as well as country towns are universally beginning to appreciate the importance of good school architecture.

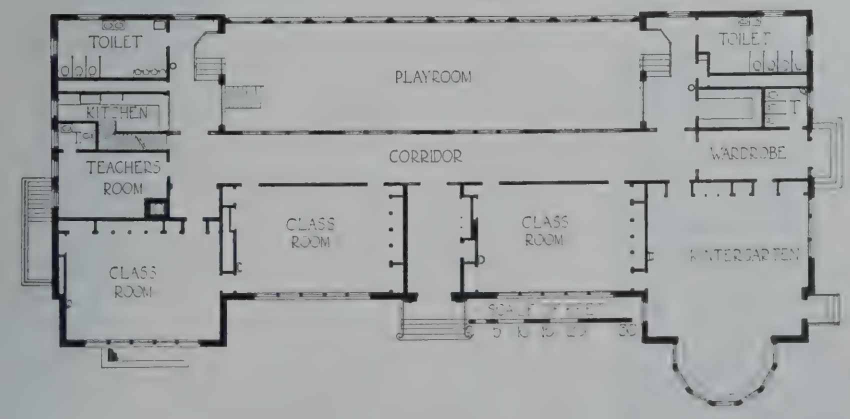


JOHN D. HARDY SCHOOLHOUSE, WELLESLEY, MASS.
CHARLES M. BAKER, ARCHITECT

HERE is another interesting schoolhouse, in which there are to be found many of the Colonial details which render the Ward 7 Schoolhouse in Melrose so attractive. The John D. Hardy Schoolhouse is somewhat larger than the Ward 7 building, as it has, besides three more classrooms, a spacious kindergarten room, and at the rear of the school, at the basement level, two large playrooms, one for boys and another for girls. Each of the classrooms accommodates 40 pupils, which seems to be the maximum number it is wise to place in one room. Each classroom contains a wardrobe, store closet, a book closet and a drinking fountain in its equipment.

The plan shows an entrance hall, leading from the entrance door to the long central corridor. On either side of this corridor are located classrooms, while at one corner of the building there is a large and sunny kindergarten room, with a spacious bay window on the front and a large three-division window on the side. This room is also supplied with closets, book shelves and a drinking fountain, thus adding to its completeness for its purpose.

In the building's elevation, the interior plan is logically and clearly dis-



Main Floor

FORUM SPECIFICATION AND DATA SHEET — 43

John D. Hardy Schoolhouse, Wellesley, Mass.; Charles M. Baker, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class.

EXTERIOR MATERIALS:
Water-struck brick, backed with terra cotta block; wood trim, painted white.

ROOF:
Slate.

WINDOWS:
Wood frames and sash, double-hung.

FLOORS:
Georgia pine.

HEATING:
Steam; thermostatic regulation.

PLUMBING:
Open; enameled iron.

ELECTRICAL EQUIPMENT:
Lighting; clocks; fire alarms.

INTERIOR MILL WORK:
Hard pine.

INTERIOR WALL FINISH:
Plaster, with burlap in some rooms.

INTERIOR DECORATIVE TREATMENT:
Buff painted walls; brown stained woodwork.

NUMBER OF CLASSROOMS:
Three classrooms; one kindergarten, and two playrooms.

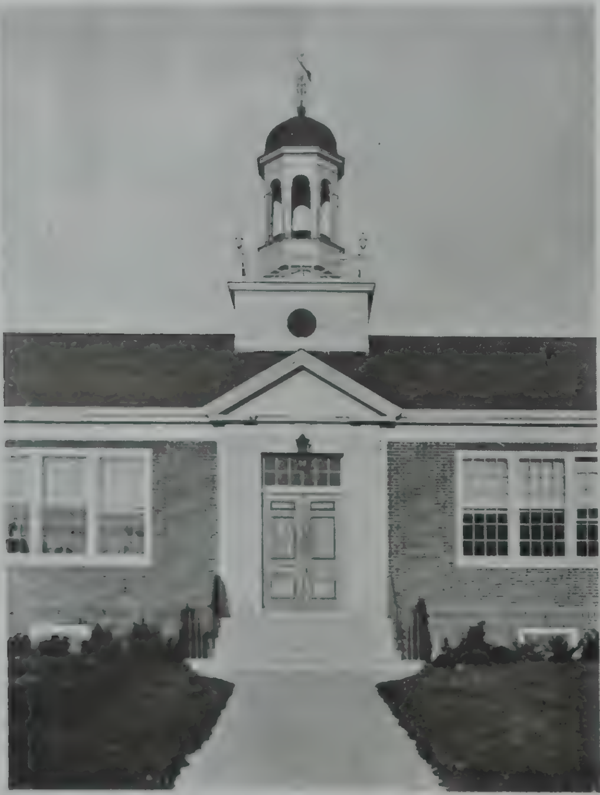
NUMBER OF PUPILS:
Approximately 160.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
185,894.

COST PER CUBIC FOOT:
32 cents.

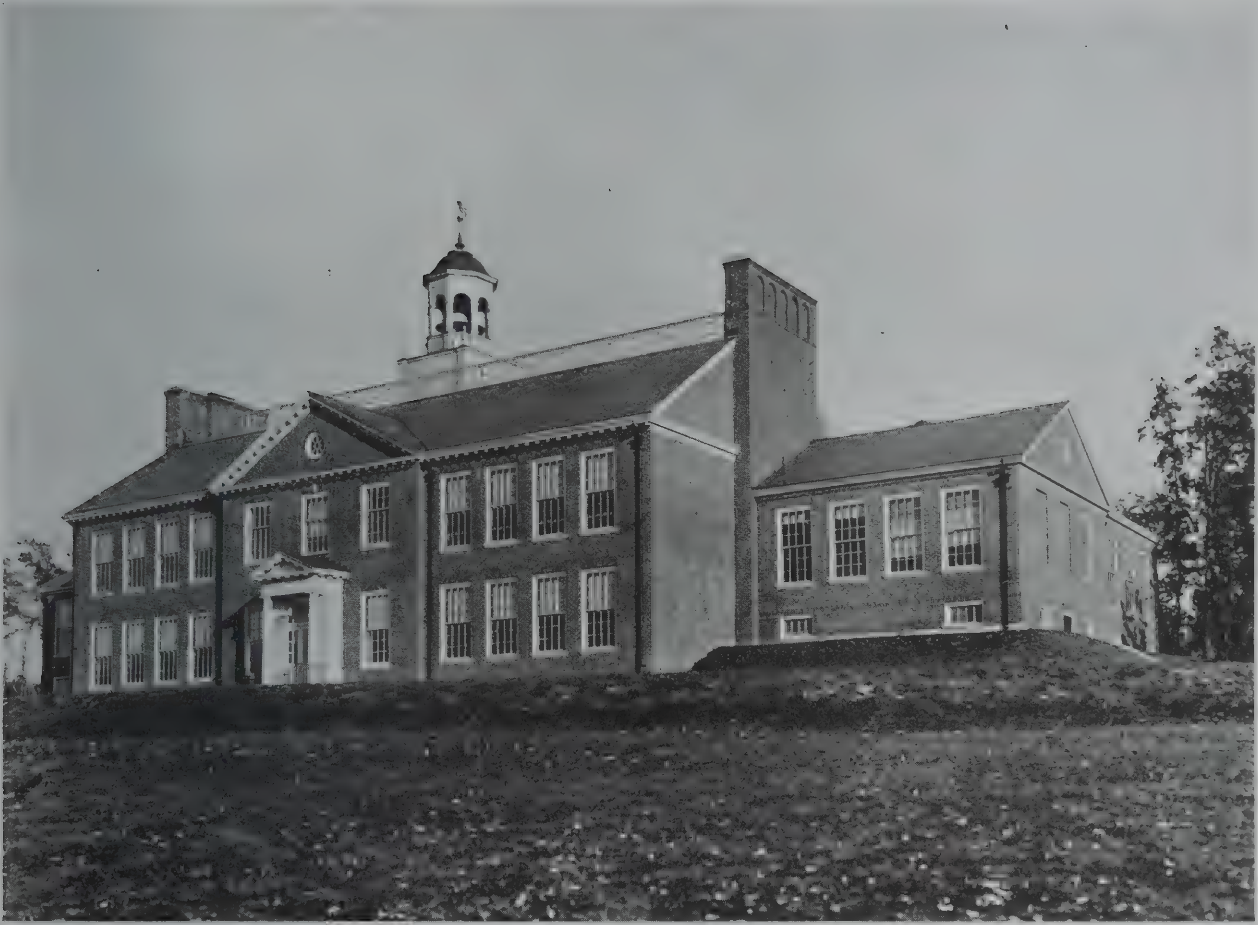
YEAR OF COMPLETION:
1923.

closed, not only by the grouping of the windows, but by the projection of the two end rooms, one a classroom and the other the kindergarten. The red brick walls, which show quoins to strengthen the corner angles of the building, contrast pleasantly with the white painted wood trim of the window frames, entablature and pediments of the main building and its wings. A belfry of suitable size lends dignity and marks the center of the design. The white painted pediments of the two end bays, together with that of the entrance door, pleasantly break the long, horizontal lines of the elevation, as does also the excellently designed and proportioned belfry, which in this case assumes greater architectural importance than is the case in the Ward 7 Schoolhouse. Here the open, octagonal belfry, with its tall, thin arches, stands on a drum of the same shape, which in turn rests on a square platform ornamented with a Colonial balustrade, which shows much refinement of detail. The space below this platform is supplied with round, louver-filled windows which serve as part of the practical ventilation system of the building, the entire system being carefully planned.

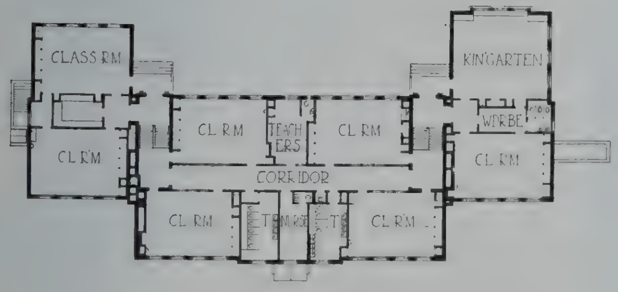

Detail, Entrance Door and Belfry

The entrance door itself is distinctly Colonial in design, reached by six white marble steps protected on either side by simple iron railings. The detail of the trim of this door also shows strong Colonial influence. Fluted pilasters on either side support an entablature and pediment, all of which shows that refinement and care have been taken in the detail. Flemish bond for the brickwork is broken at the first floor line by a row of bricks set on end. This same treatment occurs above all of the grouped windows, acting as a sort of brick arch. The two entrance doors, each containing four panels, occupy the lower part of the door opening, while above them is a high but simple transom of glass arranged in small panes. A well designed lantern provides a needed decorative touch at the top of the door.

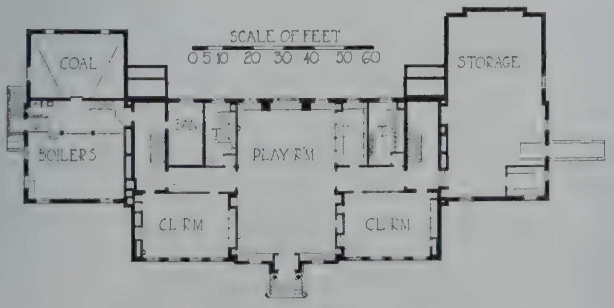
Since this schoolhouse is located on a practically level plot of ground, the greater part of the basement is used only for mechanical equipment purposes, with the exception that at the rear of the basement are located the two large playrooms already referred to. To study this building as a whole, one finds that the relation of the several parts to one another and to the entire design is architecturally very successful. The large wings seem to be in just the right proportion to the longer center section of the schoolhouse.



SEAVER STREET SCHOOLHOUSE, WELLESLEY, MASS.
BENJAMIN PROCTOR, JR., AND CHARLES M. BAKER, ASSOCIATED ARCHITECTS



Second Floor



First Floor

ANOTHER schoolhouse of outstanding excellence, in both design and plan, is the Seaver Street Schoolhouse, completed two years ago at Wellesley, Mass. A two-and-a-half-story building of brick, and a slate-covered roof terminating in a massive chimney at each end are the salient characteristics of this excellent example of the adaptation of Colonial architecture to modern schoolhouses, for which it is well suited. The building has strong, definite architectural character which is unusual.

The basements of the two wings are used in one case for a boiler room and coal bin, and in the other for storage space. The center portion of this lower or entrance floor is occupied by a large playroom, 32 feet, 6 inches wide, by 52 feet long, with windows and window seats at one end, and two windows with window seats and an entrance vestibule at the other. This large center playroom serves also as a place for pupils to congregate before and after school, as corridors lead from it to either end of the building, and it can be readily shut off

FORUM SPECIFICATION AND DATA SHEET — 44

Benjamin Proctor, Jr., and Charles M. Baker, Associated Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class.

EXTERIOR MATERIALS:
Water-struck brick, backed with terra cotta blocks; wood trim, painted white.

ROOF:
Slate for sloping roofs; tar and gravel for flat roof.

WINDOWS:
Wood sash and frame, double-hung.

FLOORS:
Georgia pine.

HEATING:
Steam, with central fan system combined.

PLUMBING:
Open; enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting; program bells; clocks and fire alarm.

INTERIOR MILL WORK:
Hard pine.

INTERIOR WALL FINISH:
Plaster and burlap.

NUMBER OF PUPILS:
360.

NUMBER OF ROOMS:
Seven.

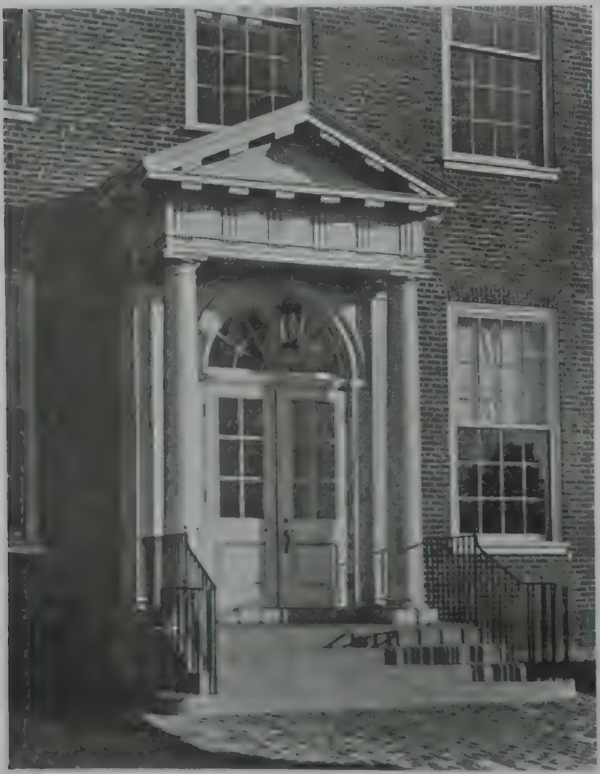
APPROXIMATE CUBIC FOOTAGE:
326,000.

COST PER CUBIC FOOT:
37 cents.

YEAR OF COMPLETION:
1923.

from the rest of the building if desired for use outside of school hours, which is frequently convenient.

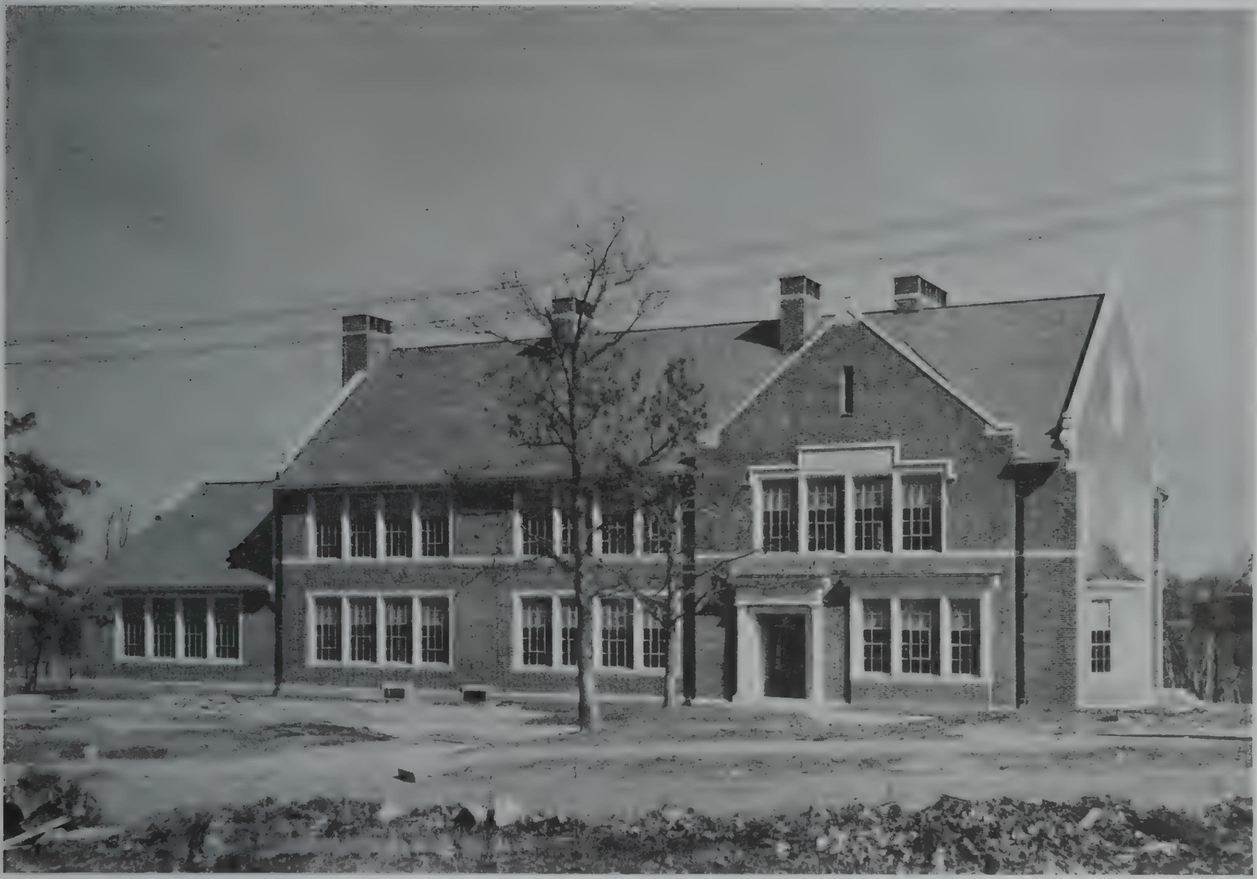
An interesting feature of the plan, made possible by the rising grade at the rear of the building, is the introduction of double doors opening upon a platform with four steps down to grade from the stairway landing at each end of the building. This makes possible an unusually adequate and efficient method of fire or emergency exit. As seems to be the preferable arrangement today, each of the classrooms as well as the kindergarten is provided with a wardrobe, storage closet and drinking fountain. In the case of the kindergarten, the wardrobe is a small room, off which opens a toilet for the exclusive use of small children. Every toilet opening off a corridor is provided with an individual entry, the doors into and out of which are supplied with spring hinges so that they are always closed, and due to the arrangement of the small entrance, no view into the toilet room from the corridor is possible. Janitor's closets, as well as space for ample ventilating flues, are provided in the walls of every room.



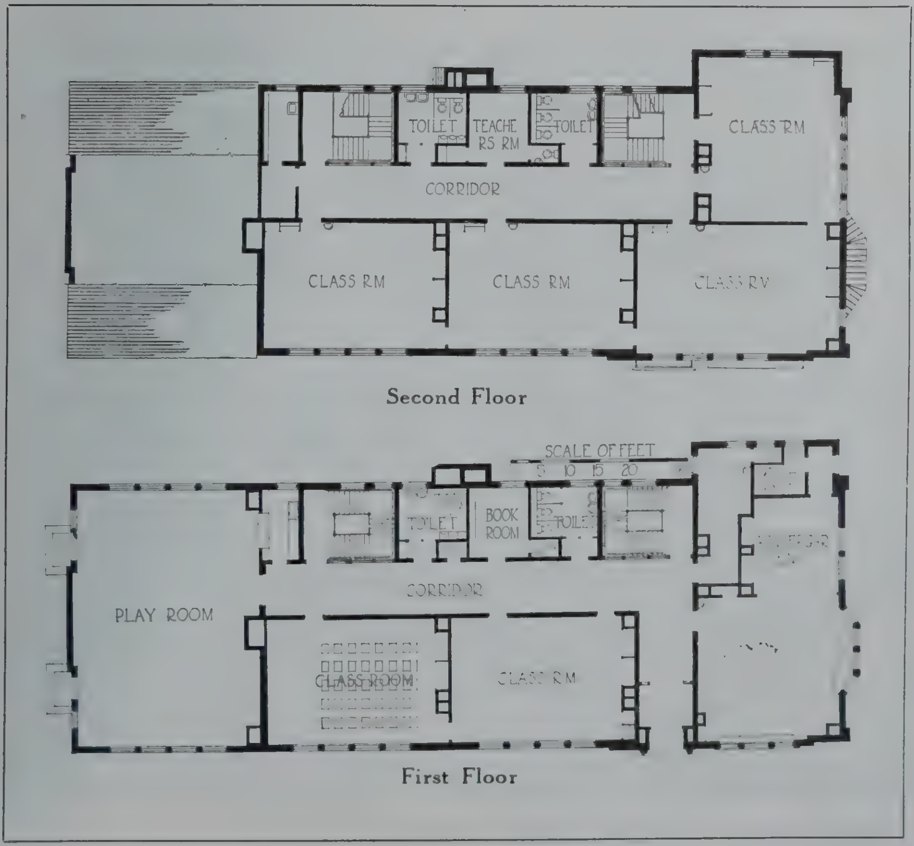
Detail, Entrance Door

As is the case with the Ward 7 Schoolhouse at Melrose and the John D. Hardy School at Wellesley, the exterior architecture of the Seaver Street Schoolhouse clearly and successfully indicates the interior plan. Large, well proportioned windows, happily divided into small panes, mark the locations of the various classrooms. The center of the main section of the building is broken by a bay containing a very attractive Colonial entrance porch, at either side of and above which are located well proportioned windows. This center bay is crowned with a pediment, at the center of which is a round Colonial window. The modillion cornice which decorates the eaves line of the front and rear facades of the building breaks around the center bay and continues up the rake of the pediment. A well designed cupola in the Colonial style located at the middle of the ridgepole of the roof adds interest and dignity.

Across the front and back of the top of the roof, long balustrades of simple Colonial design connect the great chimneys at the ends, serving to emphasize the horizontal lines of the roof and eaves. The small, one-story wings at the ends of the building are sufficiently low to add to rather than detract from the effect of the whole design; in fact they accentuate the dominant character of the main portion of the building by considerably extending the area of the structure and materially enhancing its dignity.



SHELDON L. BROWN SCHOOLHOUSE, WELLESLEY, MASS.
BRAINERD & LEEDS, ARCHITECTS



Second Floor

First Floor

THIS seven-room schoolhouse at Wellesley, Mass., strikes a somewhat different note from the usual type of small schoolhouse architecture. The style used here is a simple adaptation of the English Renaissance or of the period often known as that of William and Mary, with certain characteristics suggesting an earlier style. The informality of the design, the several large chimneys, and long roof lines, broken at one end by a projecting bay on the east where the grade falls sharply away, all help to add to the pleasant, informal, almost picturesque character of the design of this building. The groups of three and four windows successfully indicate the interior plan of the schoolhouse.

FORUM SPECIFICATION AND DATA SHEET — 45

Sheldon L. Brown Schoolhouse, Wellesley, Mass.; Brainerd & Leeds, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Boiler room, all the first floor corridors, stair-halls and stairways, toilets and offices on second floor are first class; balance of construction, second class.

EXTERIOR MATERIALS:
Water-struck brick, with cast stone trimmings.

ROOF:
Slate.

WINDOWS:
Steel frames and sashes.

FLOORS:
In kindergarten, cork; in portion of building employing first-class construction, concrete covered with a prepared flooring; elsewhere, wood joist floors, covered with maple.

HEATING:
Gravitated steam; split system.

PLUMBING:
Vitreous ware.

ELECTRICAL EQUIPMENT:
Lighting; clocks; telephone; fire alarm; program and yard bells.

INTERIOR MILL WORK:
North Carolina pine.

INTERIOR WALLS:
Hard plaster.

INTERIOR DECORATIVE TREATMENT:
Painted walls; stained woodwork.

NUMBER OF ROOMS:
Two kindergarten, six classrooms.

NUMBER OF PUPILS:
50 in kindergarten; 35 each in five of the classrooms; 40 in one of the classrooms. Total, 265.

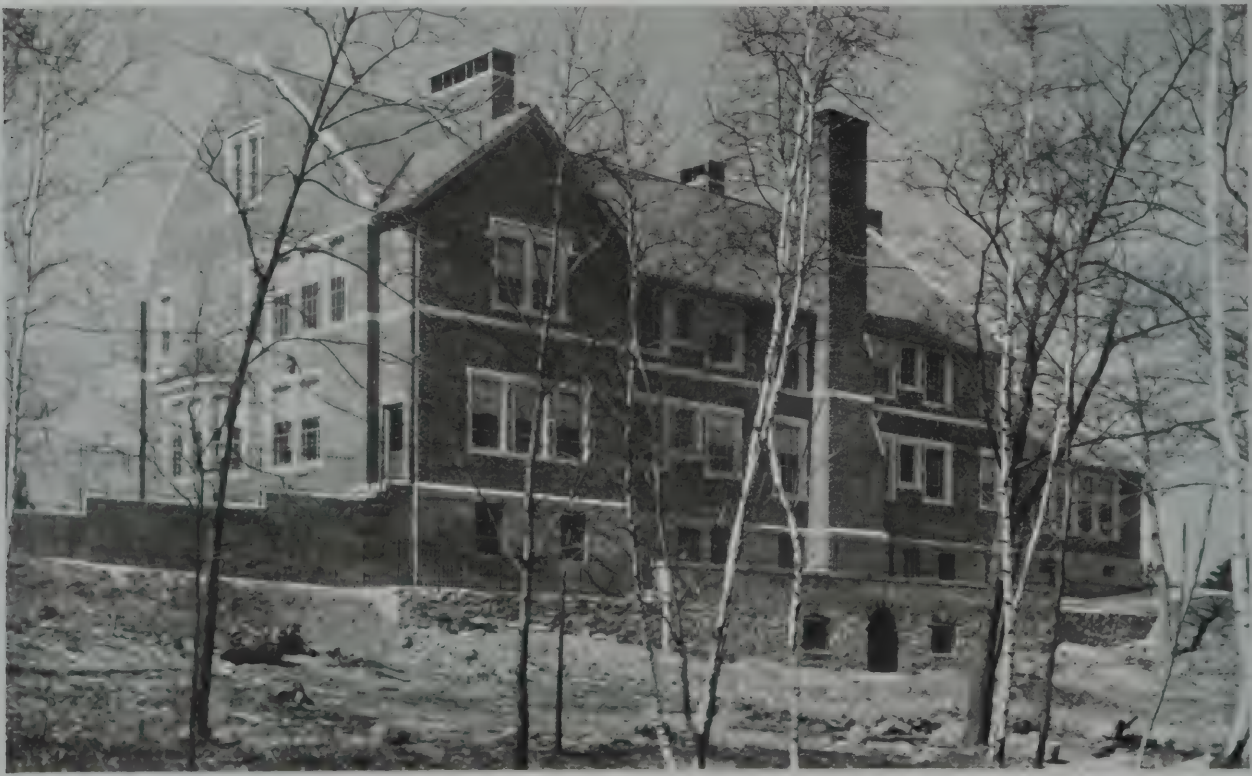
APPROXIMATE CUBIC FOOTAGE:
214,000.

COST PER CUBIC FOOT:
41¾ cents.

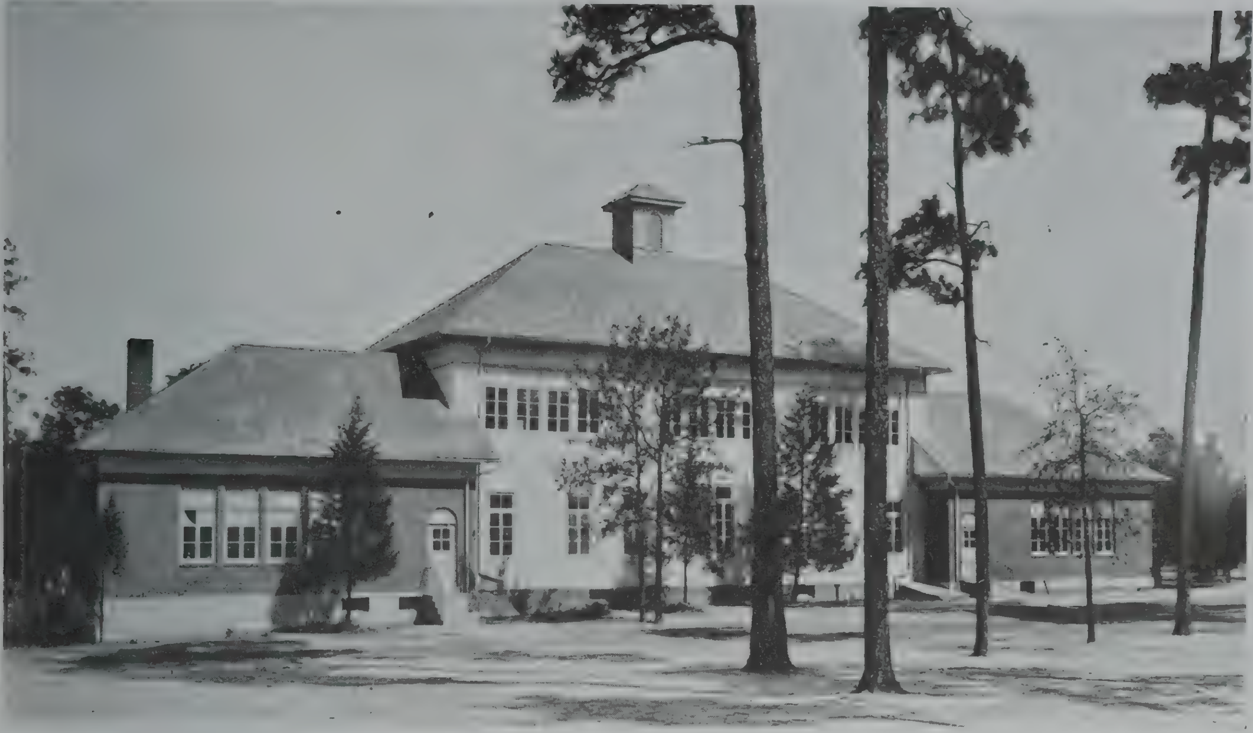
DATE OF COMPLETION:
November, 1924.

On the entrance floor are located a large playroom, two classrooms, two kindergarten rooms, with separate entrances and toilet rooms. There are also a nurse's room with individual toilet, a book room, two fireproof stairways, and toilet rooms for both girls and boys. Off the playroom is a small serving room or kitchenette, for preparing simple luncheons.

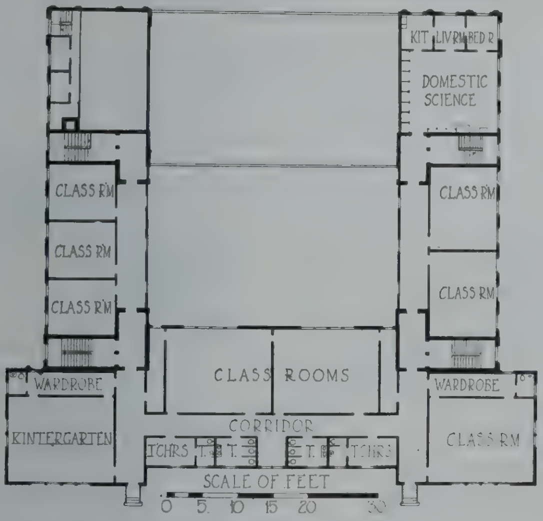
The second floor contains four classrooms with a teachers' room and individual toilet, and toilet rooms for both girls and boys. A large portion of the front part of the basement of the building is unexcavated. Due to the sharp fall in the grade on which the school is located, the boiler room, ventilating equipment room, storage space and bicycle room for boys are all located in the basement at the rear of the building. Also, the two fireproof stair-halls and stairways continue down to this floor, where they open out directly onto the yard behind the schoolhouse. The terra cotta detail of the entrance door and grouped windows contrasts well with the brick.



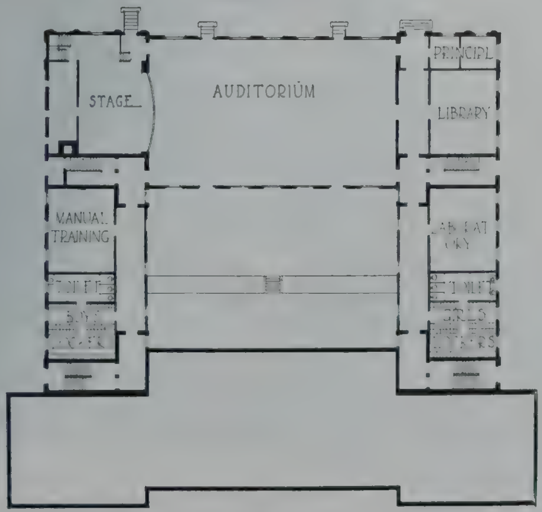
Rear View, Sheldon L. Brown Schoolhouse, Wellesley, Mass.



SCHOOLHOUSE, SOUTHERN PINES, N. C.
AYMAR EMBURY II, ARCHITECT



Main Floor



Basement

ALTHOUGH this schoolhouse at Southern Pines was an inexpensive building to erect, architecturally it has considerable distinction and originality. The use of brick veneer for the two one-story wings, and of stucco on wire lath for the center or main portion of the building, produces a pleasing contrast in the materials used. The fairly high hip roofs provide adequate air spaces above the various classrooms, and make possible the ventilating system which operates through the square cupola with louver-filled arches on the roof of the main building.

The plan is laid out around four sides of a hollow square or interior courtyard. On account of the drop in the grade, it was possible to place a good sized auditorium with stage and dressing rooms across the rear of the building on the ground floor level. This auditorium is provided with four exit doors opening directly onto the school yard behind the building. On this basement floor are also located the principal's room, a library, laboratory, toilet and locker rooms for boys and girls, one on one side of the building, and one on the other, a manual training room, and fireproof stairways which lead to the first floor. The first or principal floor, directly accessible from the front of the building, which is on the higher grade of the lot, has an entrance on each side, which connects with long corridors extending down each wing of the building and across the center. On this floor are located five recitation rooms, a domestic science room, in connection with which are a kitchen, living room and bedroom for demonstration purposes, a grade classroom and kindergarten room, located respectively at either front corner of the building, and two teachers' rooms, and toilet rooms for boys and girls. As usual, the kindergarten is provided with

FORUM SPECIFICATION AND DATA SHEET — 46

Southern Pines Schoolhouse, Southern Pines, N. C.; Aymar Embury II, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class.

EXTERIOR MATERIALS:
Wood frame, brick veneer and stucco on wire lathing.

ROOF:
Slate.

WINDOWS:
Wood; double-hung.

FLOORS:
Maple throughout.

HEATING:
Steam; vacuum system; thermostatic regulation.

ELECTRICAL EQUIPMENT:
Lighting and bells; ventilating installation in connection with heating system.

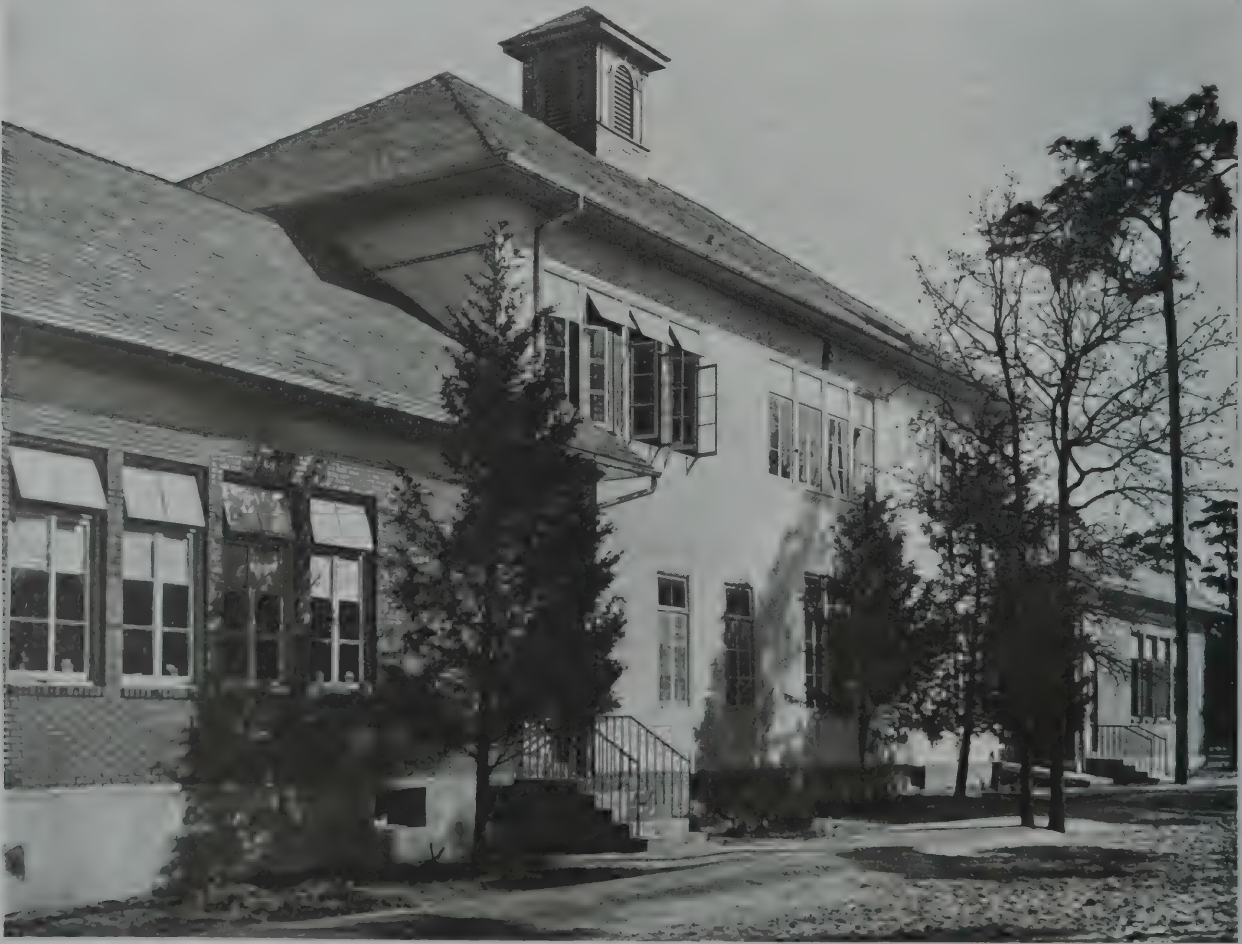
INTERIOR MILL WORK:
North Carolina pine.

INTERIOR WALLS:
Hard plaster.

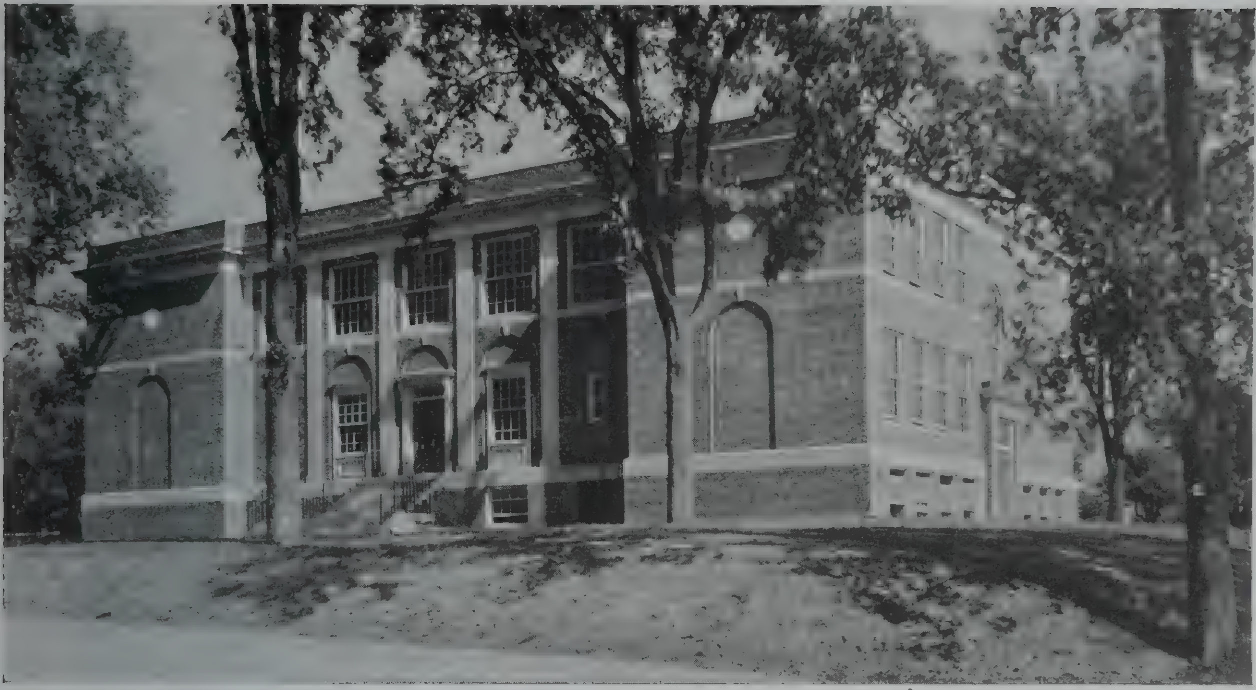
INTERIOR DECORATIVE TREATMENT:
Trim, mouldings and cornices; plaster walls painted throughout.

separate entrance, wardrobe room and toilet. The provision of five small recitation rooms is one of the unusual characteristics of this plan, which adds materially to the school's flexibility.

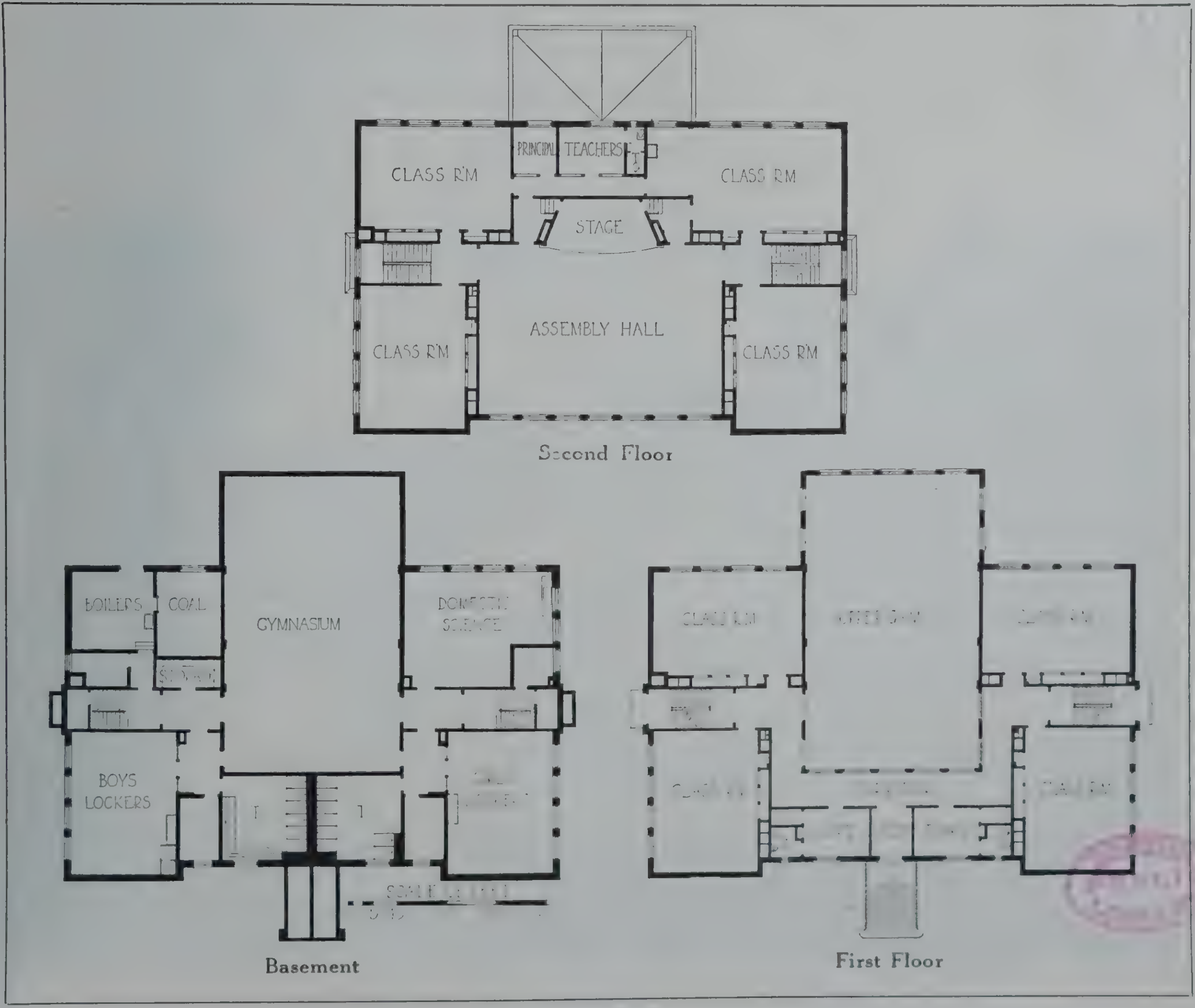
The window treatment is particularly interesting, due to the fact that all windows are double casements, opening out, with transom windows above. It is possible in winter weather, when the thermometer drops down to around 50, as it does even in this climate, to procure good circulation of air through the schoolrooms by this type of window transom and the ventilating ducts located in each of these rooms.



Detail, Schoolhouse, Southern Pines, N. C.



HIGH SCHOOL BUILDING, KENNEBUNK, ME.
HUTCHINS & FRENCH, ARCHITECTS



FORUM SPECIFICATION AND DATA SHEET—47

High School Building, Kennebunk, Me.; Hutchins & French, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class; masonry walls, stud and wood framing; fireproof stairways and stair halls.

EXTERIOR WALLS:
Red brick; limestone trimmings.

ROOF:
Tar and gravel.

WINDOWS:
Wood, double-hung.

FLOORS:
Maple in classrooms, gymnasium and assembly hall; terrazzo in all toilet and locker rooms.

HEATING:
Steam, with gravity type of ventilation.

INTERIOR MILL WORK:
North Carolina pine.

INTERIOR WALLS:
Plaster, painted.

NUMBER OF PUPILS:
320.

NUMBER OF CLASSROOMS:
Eight.

APPROXIMATE CUBIC FOOTAGE:
270,000.

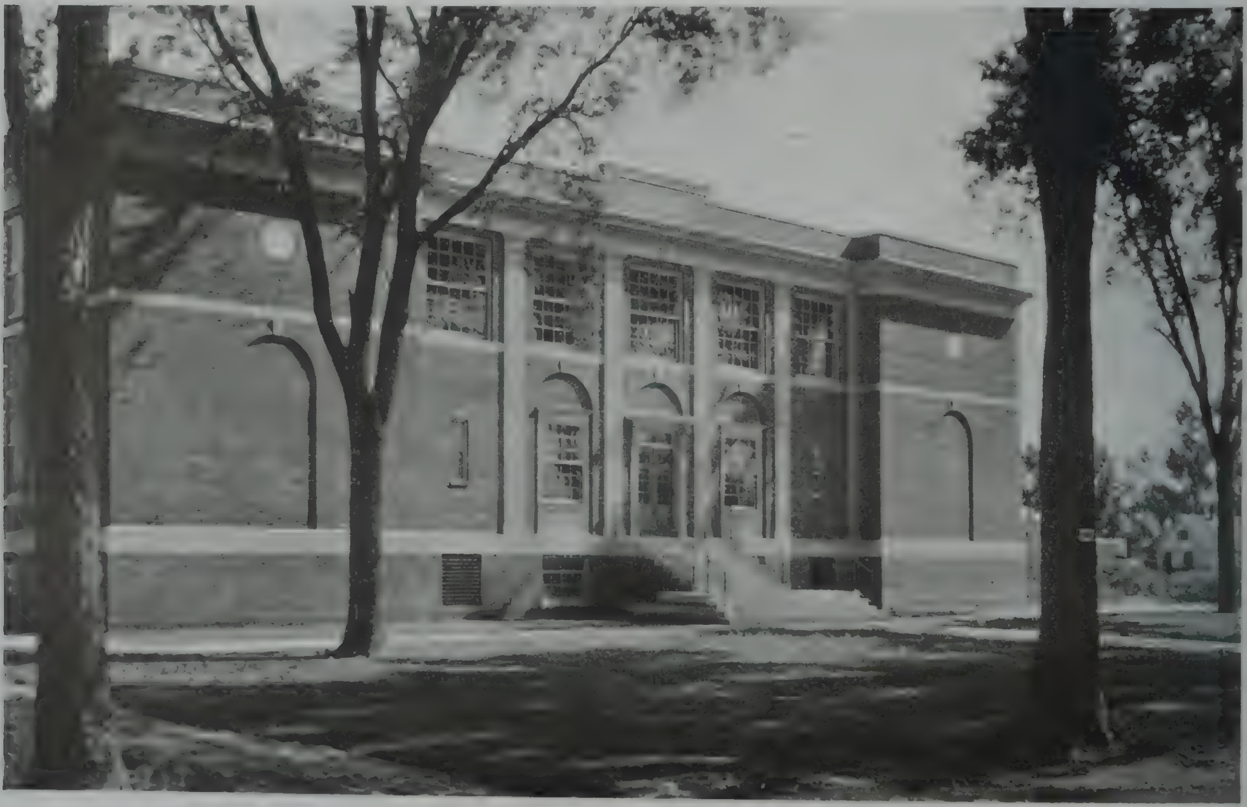
COST PER CUBIC FOOT:
29 cents.

COST PER SEAT:
Approximately $236.

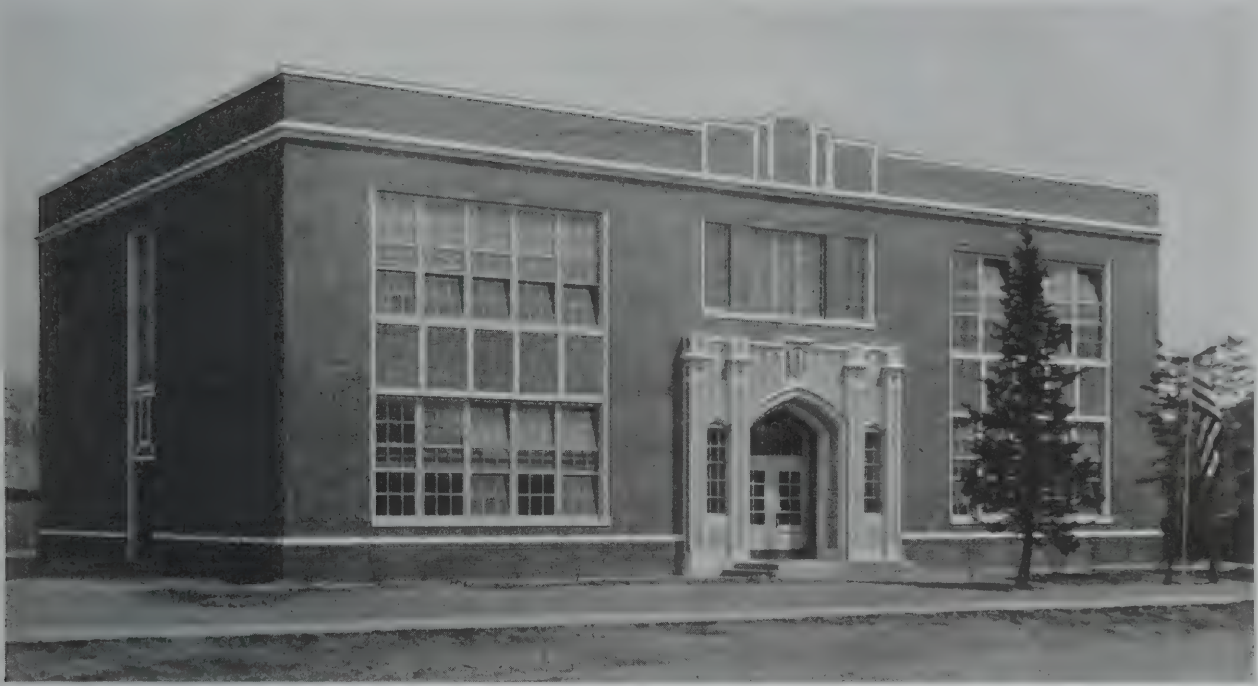
YEAR OF COMPLETION:
1922.

ALTHOUGH completed three years ago, this simple, well balanced design in the Colonial style is one of the best examples of the moderate sized schoolhouse to be found in New England. The plan is compact, convenient and practical. Accommodating 320 pupils, this school building contains all of the equipment needed for a small high school in a town the size of Kennebunk. Entering by a flight of steps to a door in the middle of the front facade, the first floor is reached, sufficiently high above the grade level to permit good sized windows to light the basement below. In this basement is located a large gymnasium, which extends up through two stories, with high windows which come on a level with the other windows of the first floor.

At each corner of the first floor is located a classroom, each accommodating 40 pupils. A superintendent's office and a teachers' room, each with separate toilet and closet, are located at the sides of the entrance vestibule on this floor of the building.

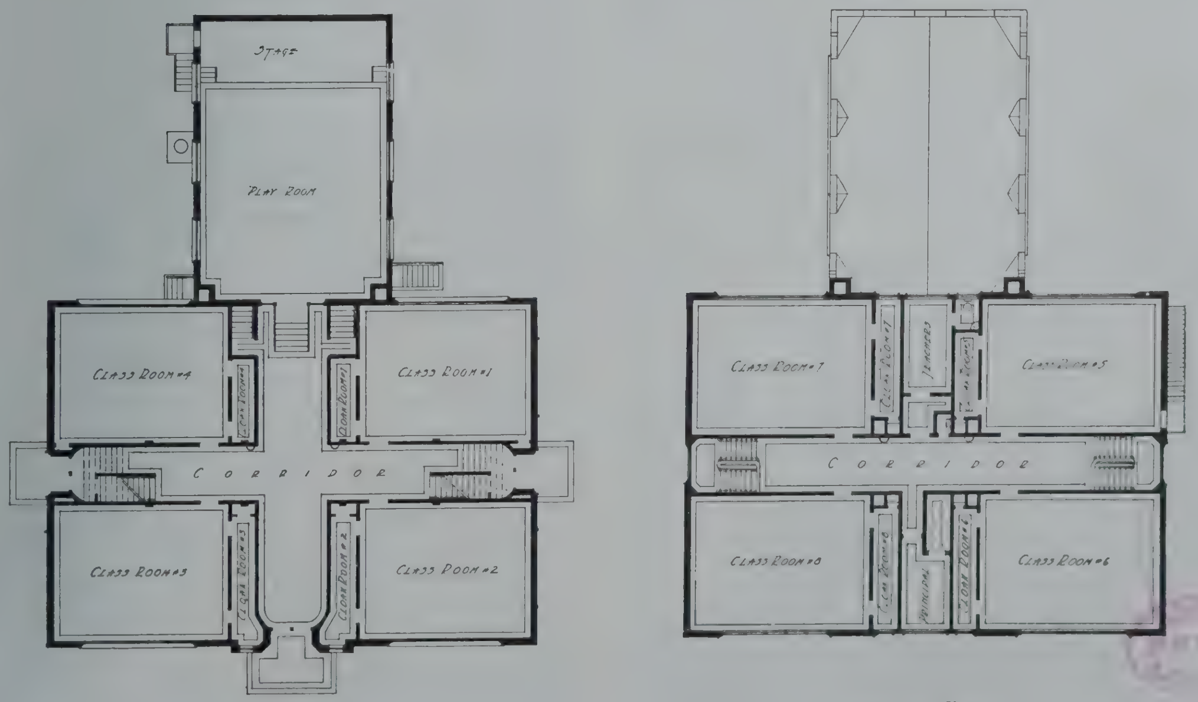


Detail, Entrance Front, High School, Kennebunk, Me.



WHITING SCHOOLHOUSE, LARAMIE, WYO.
WILBUR A. HITCHCOCK, ARCHITECT

FROM the Middle West have come illustrations and plans of a simple but well designed schoolhouse of eight classrooms, accommodating 40 pupils each, making a total of 320. The plan of the building is logically expressed by the wall treatment of the exterior. Panels of windows on both first and second floors break the front facade on either side of an entrance doorway, emphasized by a terra cotta enframement carried out in simple Gothic detail. Above this entrance an oblong group of windows on the second floor carries the treatment of the building up to a terra cotta string course, above which is a brick parapet broken into panels at the center. Each end of the building shows paneled wall surfaces, indicating the blank walls in the schoolrooms, and a vertical center treatment of entrance



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 48

Whiting School, Laramie, Wyo.; Wilbur A. Hitchcock, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Face brick and hollow tile; steel columns and girders; reinforced "hollow pan" concrete floor construction; block partitions.

EXTERIOR WALLS:
Brown face brick; terra cotta trim (ivory with variegated blue background).

ROOF:
Built-up asbestos roofing.

WINDOWS:
Steel frames and sash.

FLOORS:
Clear white maple, laid on sleepers over concrete construction.

HEATING:
Steam.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Conduit installation of wiring; commercial type fixtures.

INTERIOR MILL WORK:
Sawed red oak; metal casings used on all doors and windows.

INTERIOR WALLS:
Smooth plaster.

NUMBER OF PUPILS:
320.

NUMBER OF CLASSROOMS:
Eight.

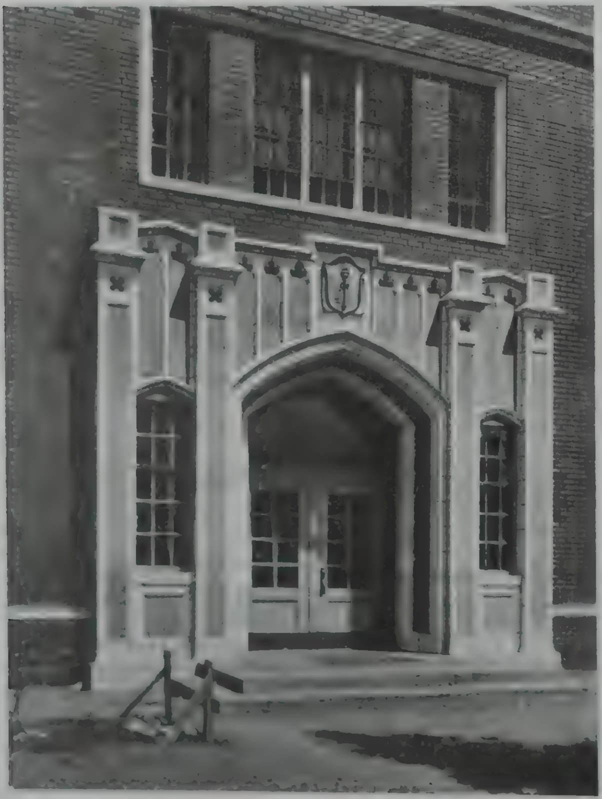
APPROXIMATE CUBIC FOOTAGE:
195,600.

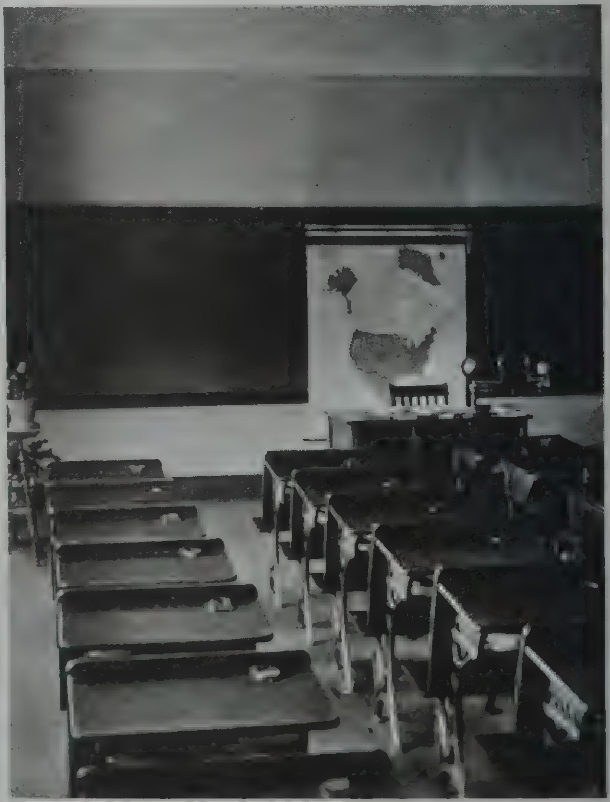
COST PER CUBIC FOOT:
About 28 cents without furniture, or $172 per pupil.

DATE OF COMPLETION:
March, 1925.

door at grade level with high windows above, which light the stairways at either end of a long corridor.

The plan is as straightforward and direct as are the exterior elevations. Two stories in height, the first or entrance floor is divided into four parts by center and longitudinal corridors. Each of the four parts thus divided is occupied by a classroom with individual coat room. The center corridor leads through the building to a large story-and-a-half playroom or auditorium at the rear. This room has a stage at the rear end. On the second floor there are four classrooms in positions similar to those on the first floor. Here also are located a principal's room and a teachers' room with individual toilet. As the ground under the front portion of the building is not excavated, the boiler room, space for coal storage, and toilets for boys and girls are located under the auditorium or playroom at the rear of the building. These two toilets are accessible by stairs from both the outside of the building and from inside.


Detail, Main Entrance


A Typical Schoolroom

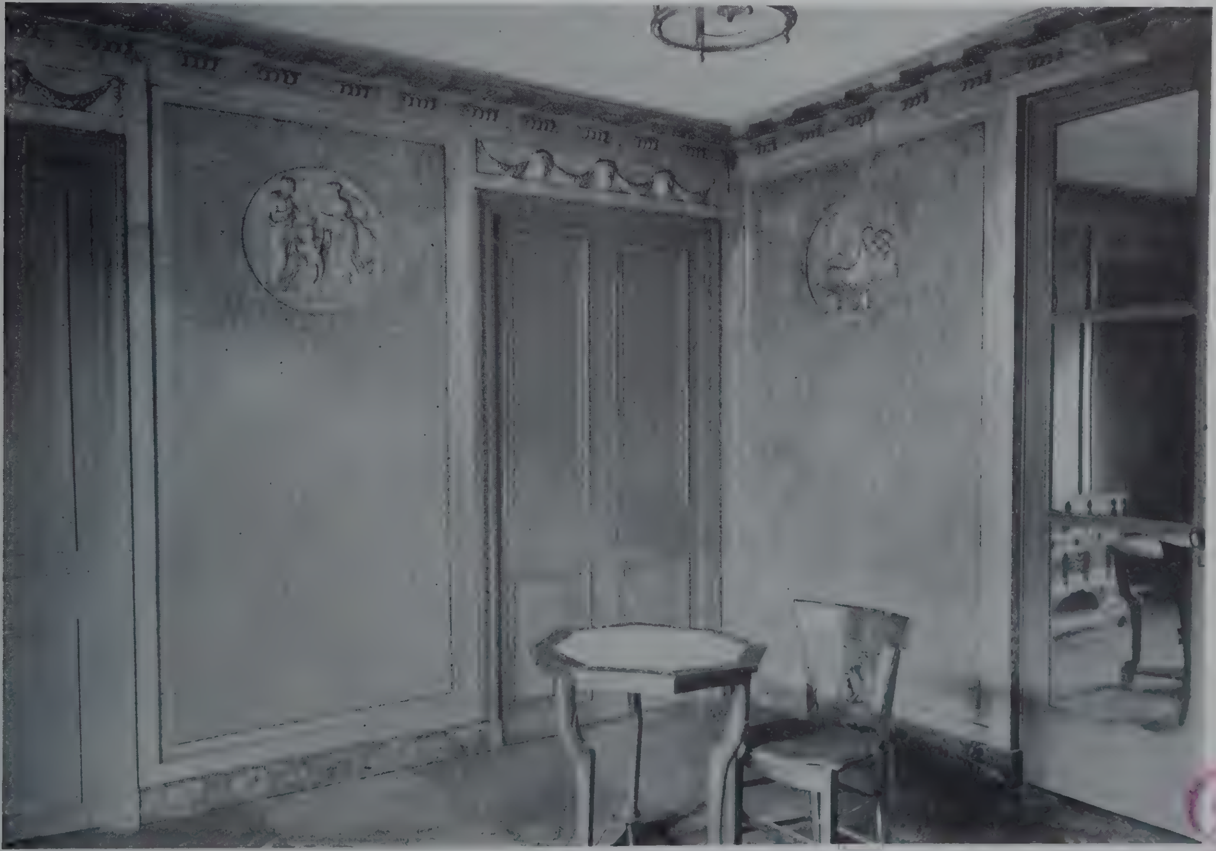
INTERIOR ARCHITECTURE

Small Salon, Hotel Gouthiere, Paris

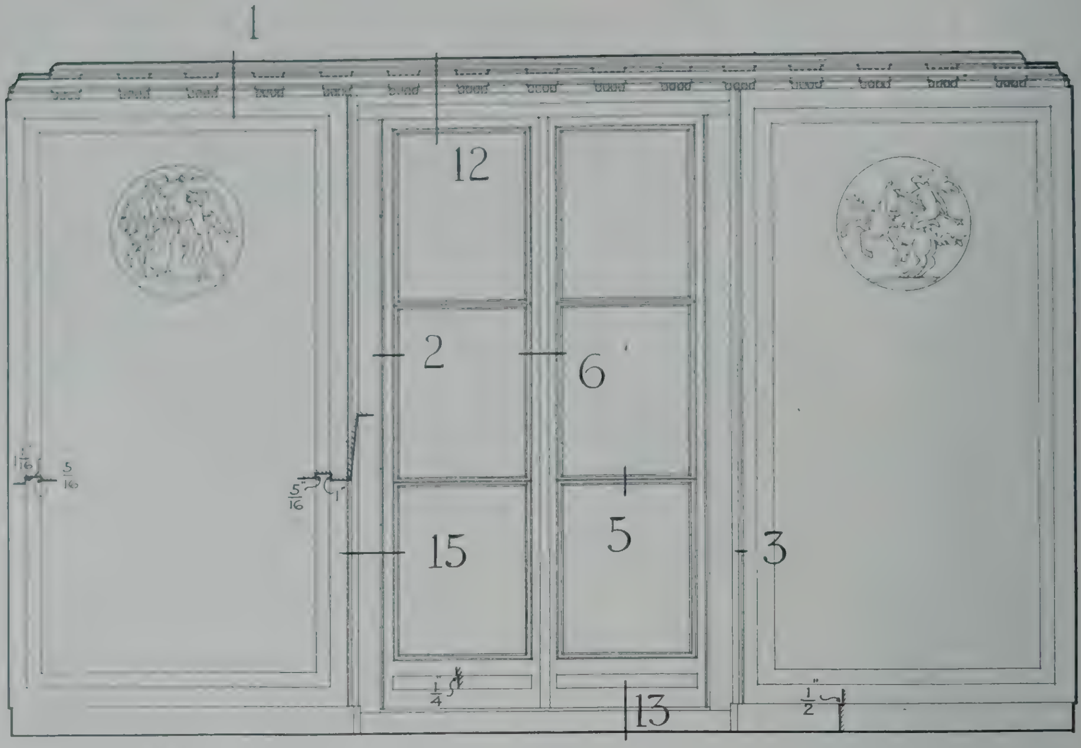
WITH DRAWINGS BY C. HAMILTON PRESTON

IN an article published in THE ARCHITECTURAL FORUM of March, 1924, the Hotel Gouthiere in Paris was described at some length, accompanied by detailed drawings and illustrations of the entrance vestibule and the little salon, of which Mr. Preston has since made very complete and accurate detail drawings which appear on these pages. In THE FORUM of last December were published measured details of the charming little library in this same famous small hotel, also measured and drawn by Mr. Preston. It is a pleasure to show in this issue further details of this exquisite piece of Louis XVI and Directoire architecture.

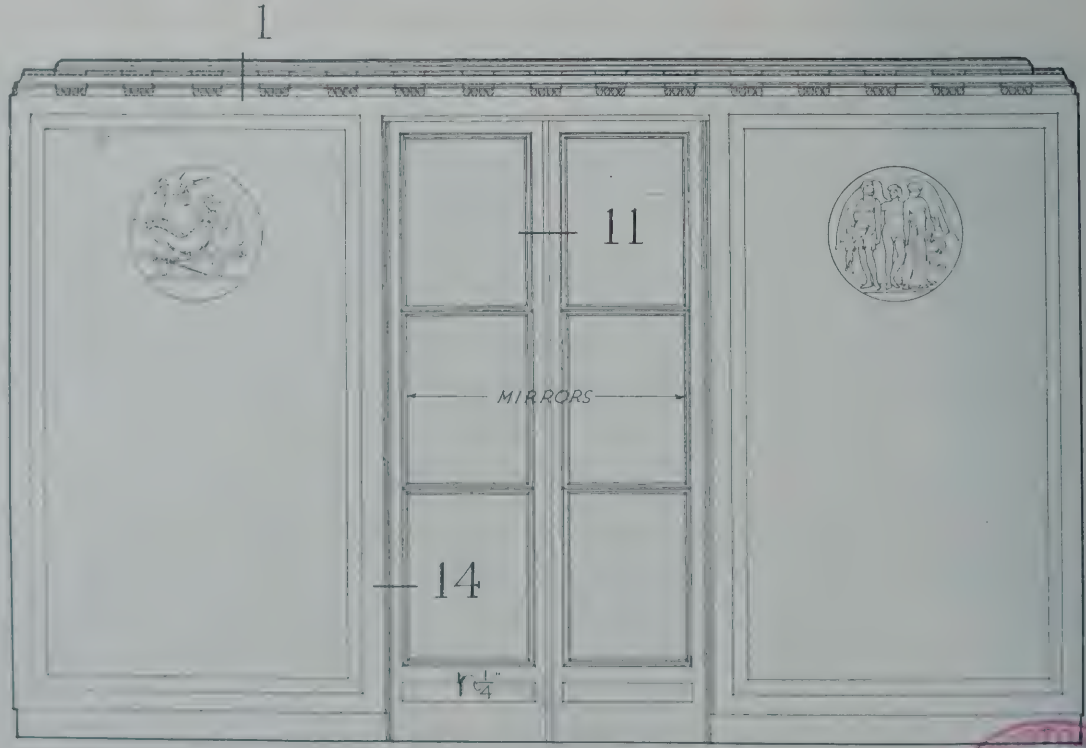
This small salon shows great delicacy, refinement and reserve in the treatment and handling of its architectural details. The Classic influence is easily recognized in the low cornice with its mutules and guttæ. Although the room is small, the decorations and mouldings are in such perfect scale that an appearance of greater size is obtained. This room might well be actually copied or taken as the inspiration for a small reception room or salon in any American apartment or country house. Unfortunately, complete and delightful as are the detailed drawings, no idea of the charming color treatment of this small room may be obtained from illustrations. Mr. Preston provides the information that the baseboard is painted to imitate soft, red marble; the walls and trim are painted a rich yellow, the wall panels being marbleized. The doors are painted a gray-green, the ceilings a deep cream, and the floor is stained a dark brown and waxed. The finishing touch of color, most important of all, is the delightful blue used for the four interesting medallions set into the upper part of each of the high wall panels. It is hoped that from this suggestion of the colorful treatment of this room it may be possible to visualize something of the charm of this unusual small interior. The use of color, particularly when marbleized, is constantly growing in popularity, not only among the leading decorators, but among architects who enjoy and appreciate color in architecture. Not only is color now used to a great extent in the finish of walls and woodwork, but even on the exterior of buildings where very successful effects are produced through use of color in terra cotta and brickwork.



Refinement and Restraint Characterize the Details



ELEVATION C~C
Scale 3/8" = 1 Foot

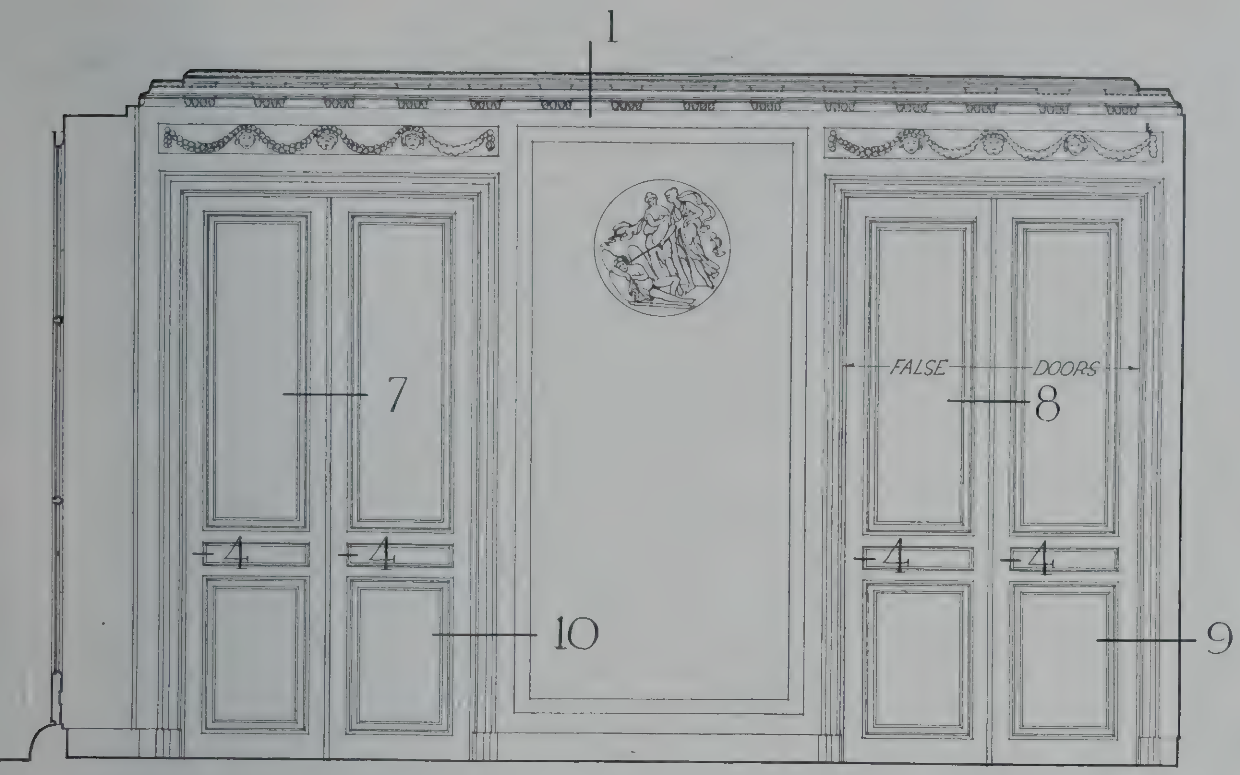


ELEVATION D~D

SALON

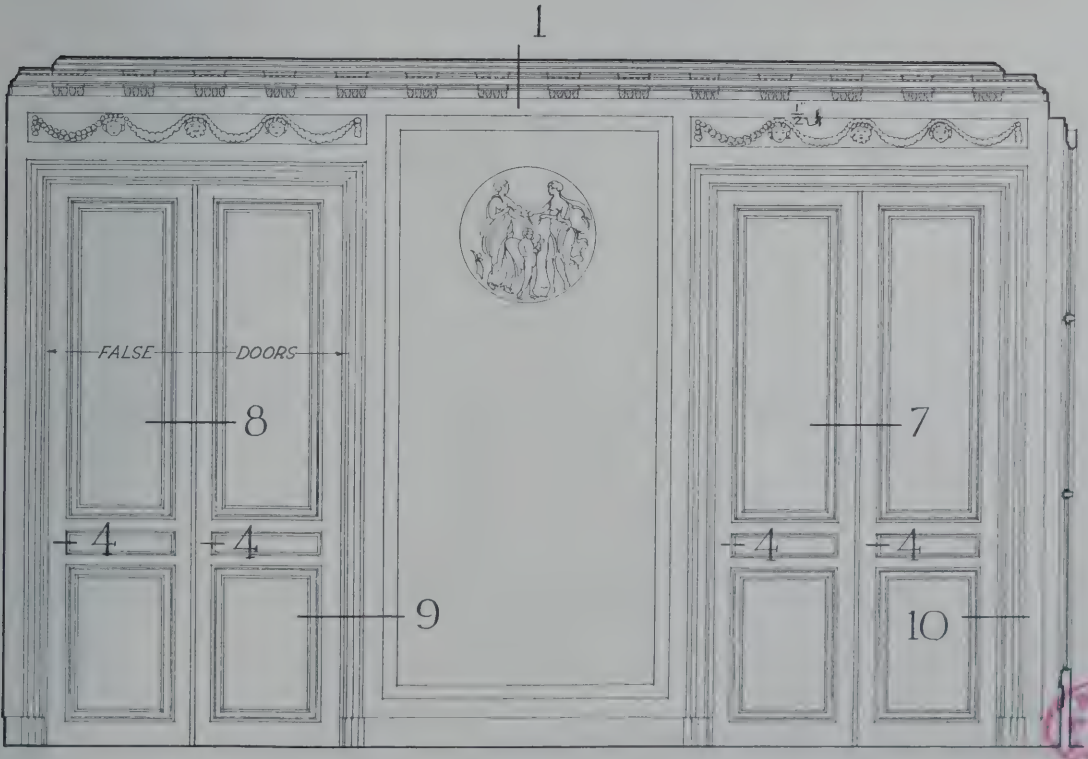
HOTEL GOUTHIERE

PARIS



ELEVATION A~A

Scale $\frac{3}{8}''$ = 1 Foot



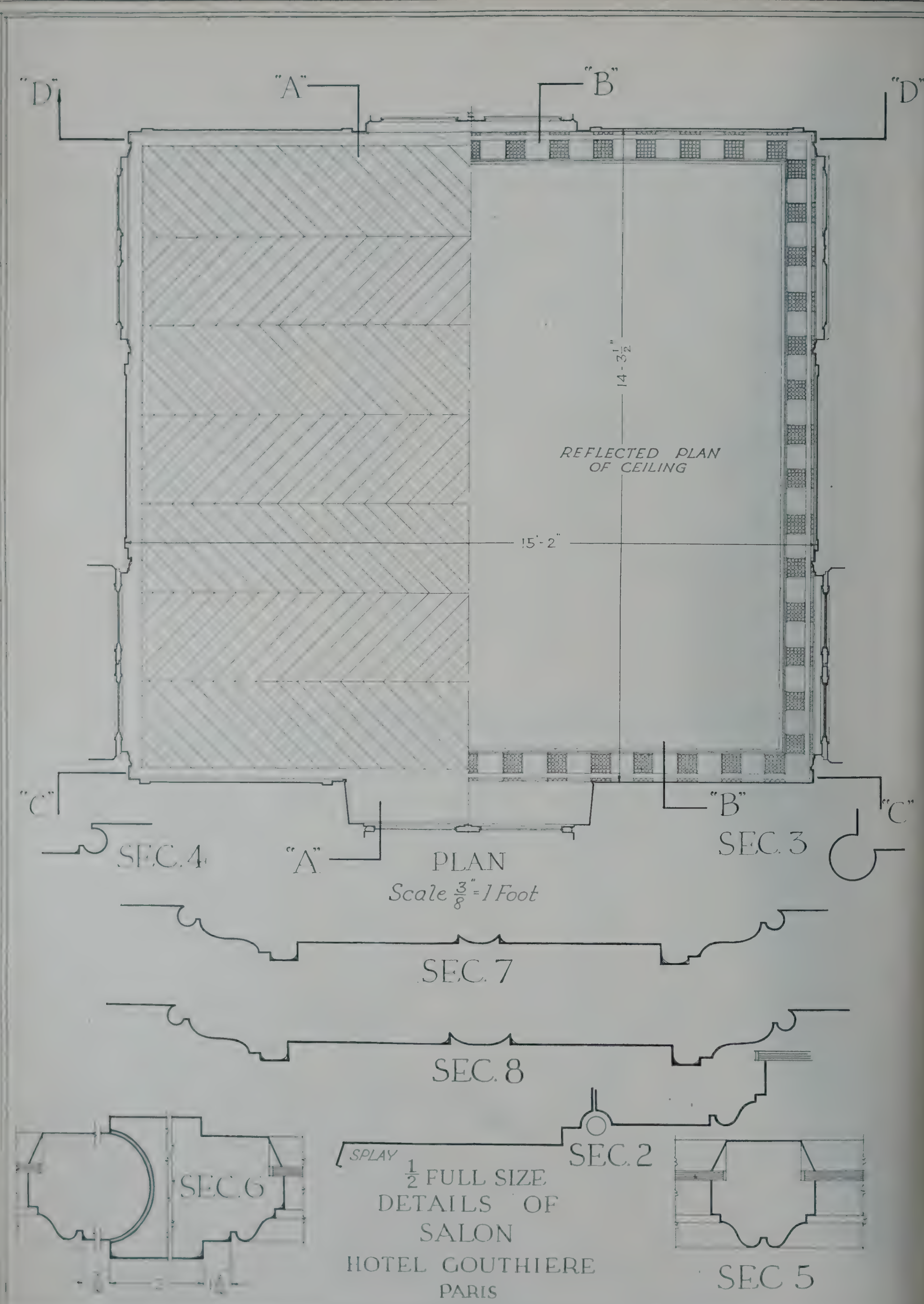
BOSTON PUBLIC LIBRARY

ELEVATION B~B

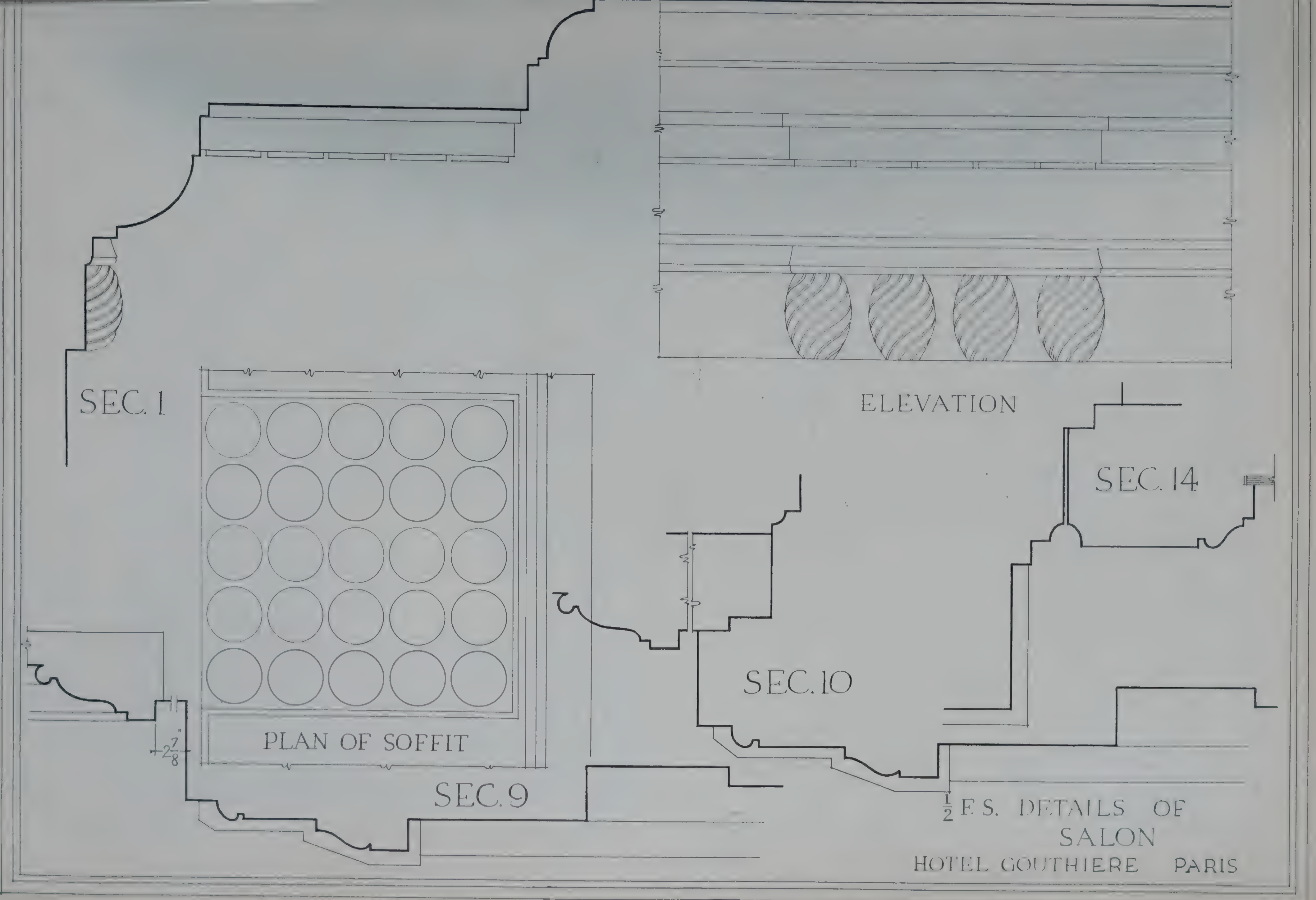
SALON

HOTEL GOUTHIERE

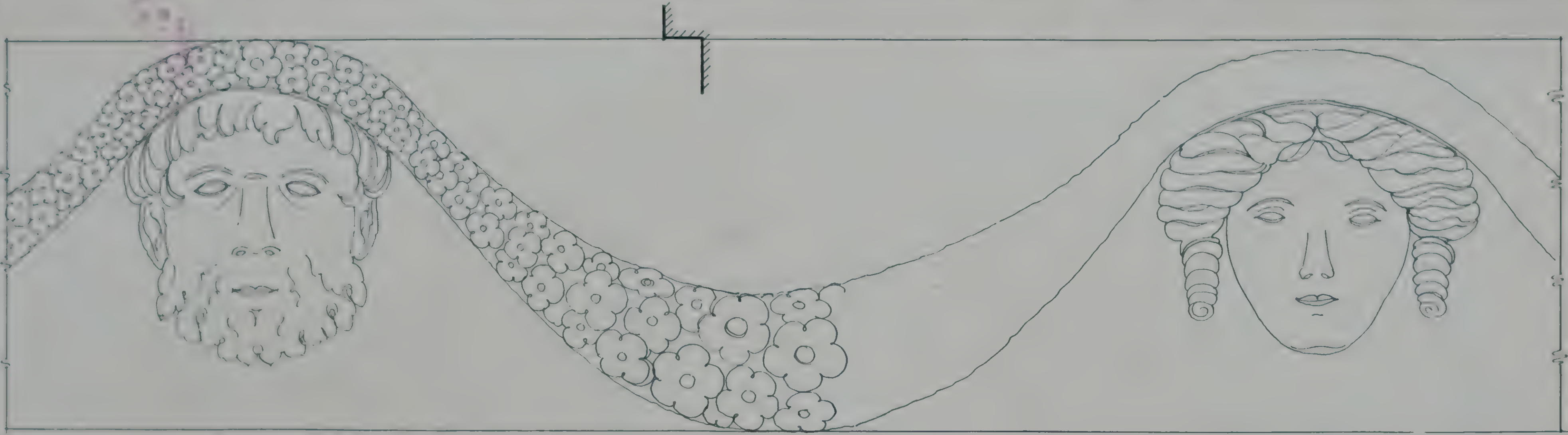
PARIS



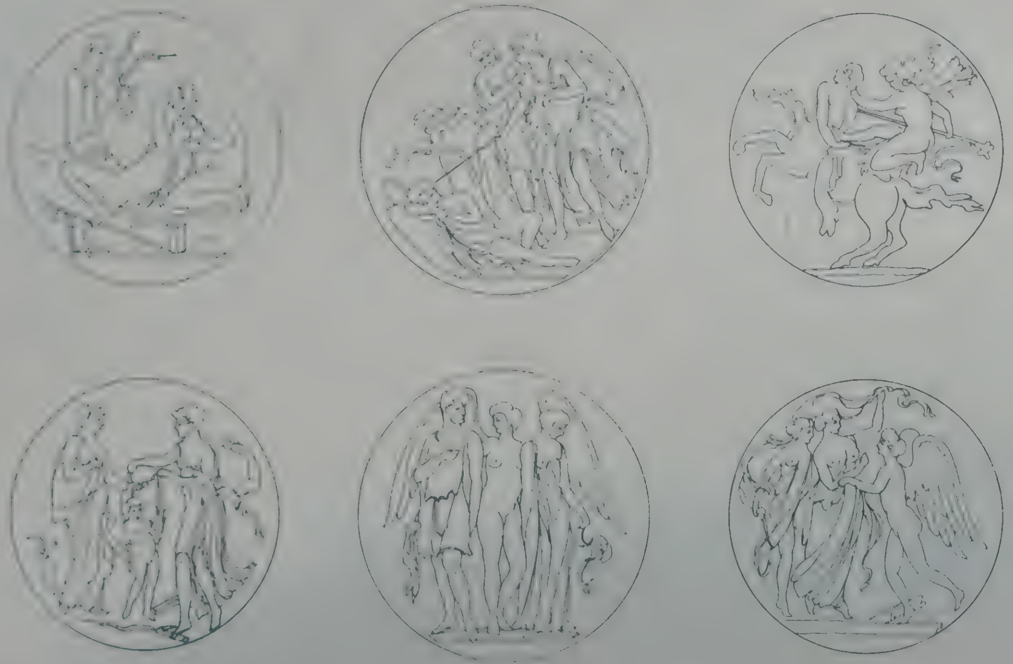
½ FULL SIZE
DETAILS OF
SALON
HOTEL GOUTHIERE
PARIS



$\frac{1}{2}$ F.S. DETAILS OF SALON
HOTEL GOUTHIERE PARIS

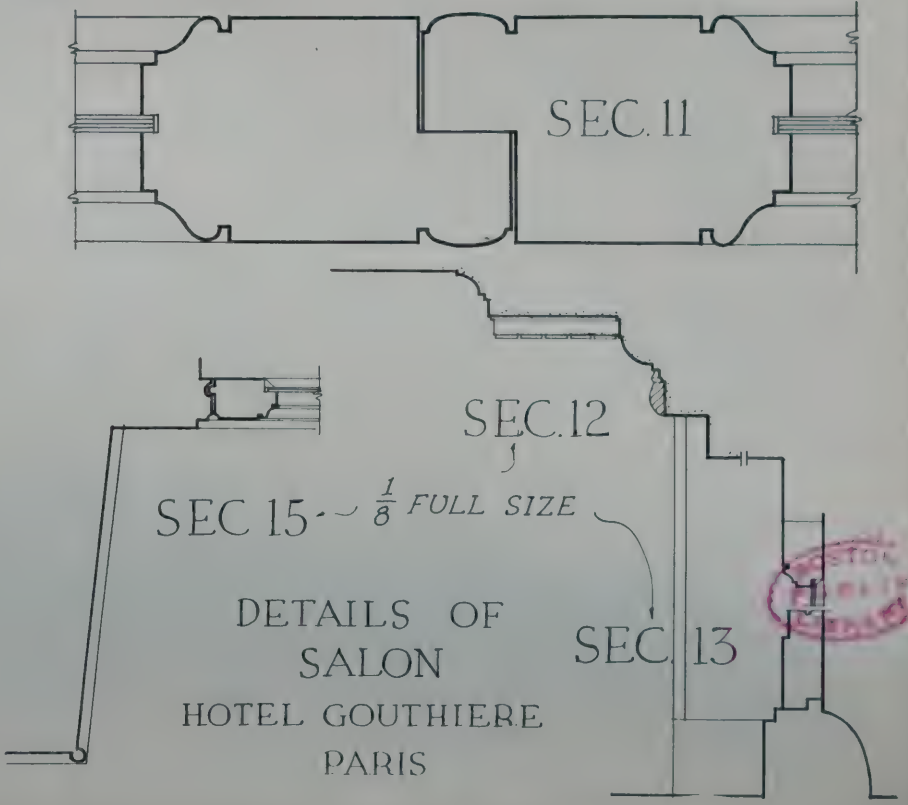


½ F S DETAIL OF PANEL OVER DOORS



ELEVATION OF MEDALLIONS

Scale $\frac{3}{4}$" = 1 Foot



DETAILS OF SALON
HOTEL GOUTHIERE
PARIS

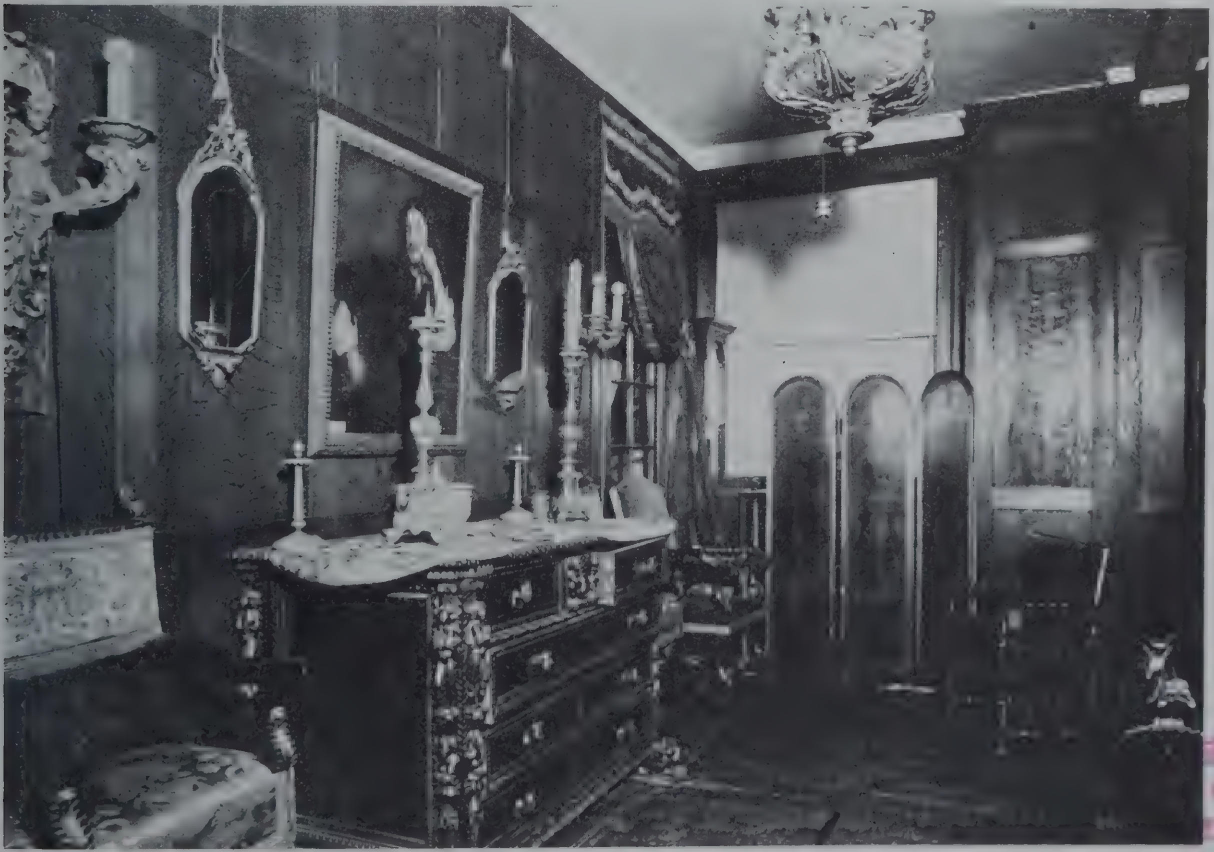
DECORATION & FURNITURE

Interiors in the Early Italian Renaissance Style

By ALFRED LOWDEN

ITALIAN decoration during the fifteenth and sixteenth centuries is of commanding interest to America, as the revival of the arts, the growth of culture, and the social splendor of the life of that period are being repeated in the history of today. Of course our modern standards of living, economy of space, and conditions in general impose new adaptations. The Renaissance owed a great deal to mediæval fancy for its spirit of adventure and romanticism. During that age Italy was passing through a period of development. The vision of beauty in all its alluring forms was entering the minds of the humblest artisan and apprentice. Even the making of articles of domestic utility became a means of artistic expression, and craftsmanship became a fine art.

Factories for the manufacture of brocades, damasks, and taffetas flourished. There, also, were established studios whence came beautifully carved sculptures to adorn the homes and gardens of the wealthy, and workshops which turned out the furniture that has proved such an inspiration to the modern designer. Wonderful country palaces were built, marvelous gardens were laid out, and luxury and beauty were everywhere predominant. In these magnificent villas were to be found wonderful paintings, rare examples of sculpture, rich fabrics, and the superlative from every known clime. The artists of the Renaissance excelled in the painting of frescoes and in the use of landscapes, which proved to be a wonderful medium of decoration, particularly well adapted to the limited space of a modern apartment, because the use of perspective gives an added sense of spaciousness to a room. Tapestries were also used as a means of mural decoration. Frequently these were woven from the designs of the greatest of artists, men as prominent as da Vinci and Raphael. Often the interior walls were of plain stucco, broken by niches, designed to hold statuary. Velvets and damasks, too, were often applied to the walls, much as paper was used during later periods.



Photos Loaned by John H. Hutaff, Inc.

Successful Grouping of Italian Renaissance Furnishings in a New York Apartment

Credenza and Decorative Painting in a Modern Italian Interior

Painted Decoration on Ceiling Adapted from Italian Sixteenth Century Room

Heavy draperies of velvet and damask provided a sumptuous form of dressing the windows. Valances were elaborate, appliqued and trimmed with heavy gold fringe. These draperies were suspended from richly carved cornices and reached to the floor, elaborate tie-backs giving them a graceful sweep. Ceilings were frequently beamed, and upon the timbers were painted stenciled designs in gold and colors.

As a rule, the Italians of the Renaissance used very little wood in the construction of their floors. Marble, mosaic and tile, all of which were popular for floor materials, were equally well suited to the warm and moist Italian climate.

Until about the beginning of the fifteenth century comfort in the home in the modern sense of the word was almost unknown. With the increase of private wealth more thought was given to personal luxury and ease. The keen competition between wealthy families to outdo each other stimulated the artificers to new endeavors. Upholstery and cushions, which helped to make furniture a great deal more comfortable, also began to be used. Richly carved chairs were made still more elaborate by the use of tapestry, tooled leather and velvet.

Prior to the fifteenth century tables were more or less makeshift affairs, hardly more than heavy boards placed between trestles. During the Renaissance, however, this article of furniture was developed considerably, and was built with more permanent construction and with a richer decorative treatment. Many tables were made with two very heavy plank ends, vigorously carved, or with square legs with feet, often terminating in lions' claws, a wooden stretcher giving additional support. Octagonal tables, supported by a central pedestal, were also frequently used. Silver p'ate was of great magnificence and helped to make table etiquette more refined and ceremonious as life became elaborate and complicated.

Heat was obtained from immense fireplaces, some with projecting hoods, others having above them niches with statues of the Virgin or other popular saints. The andirons were particularly interesting, many being works of art in bronze and iron. Gilt sconces and wrought iron and silver candelabra held thick candles which diffused a soft (if inadequate) light. These may be adapted for modern use by being wired for electricity and made practical though they still retain their artistic value. The Renaissance bedroom was quite a luxurious affair. Great attention was given to the bed and its accessories, the bed often placed in an alcove and screened by brocaded hangings, or else set on a *predella* or dais, with damask or fine linen coverlets or bedspreads.

The general growth of wealth today, the desire for culture, and the improvement in taste combine to make the period of the Italian Renaissance one of outstanding interest to America. We adapt this style of architecture to suit our needs, so why should we not also adapt this period of interior decoration? Its restrained simplicity, which was achieved by an inborn love of beauty, is to us peculiarly appropriate. It has none of the ostentation of the later Baroque period. Modern decoration today is slowly learning to make use of much these same principles.

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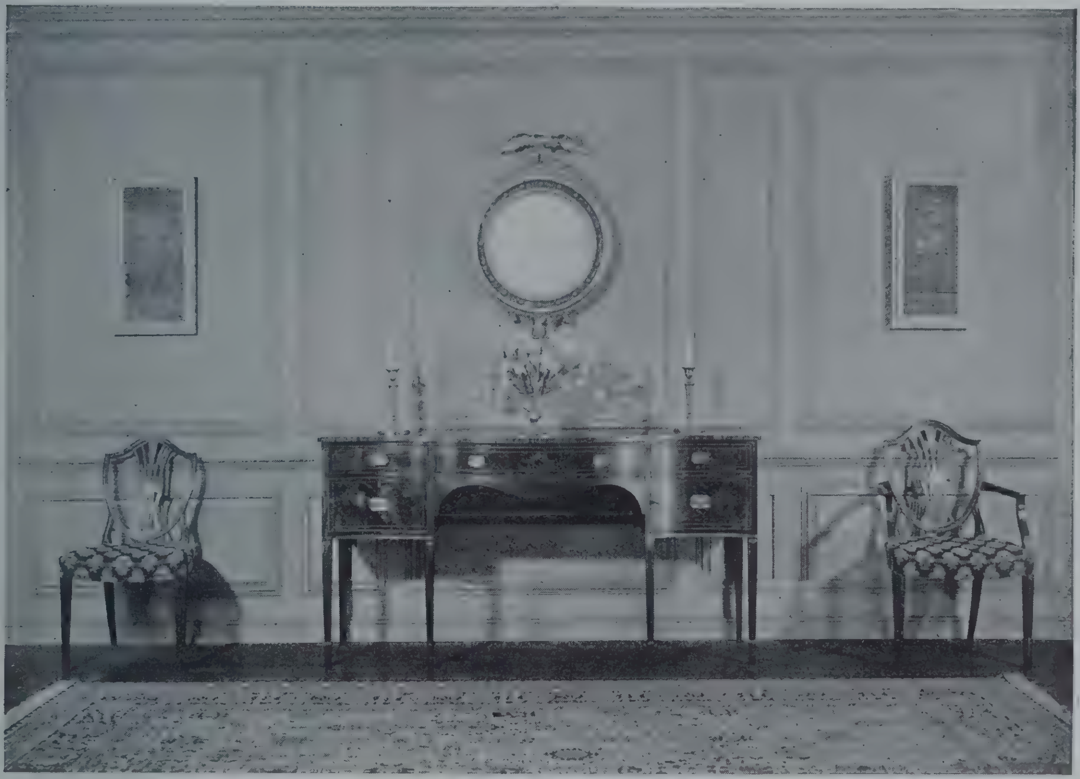

A Wall in the Showrooms

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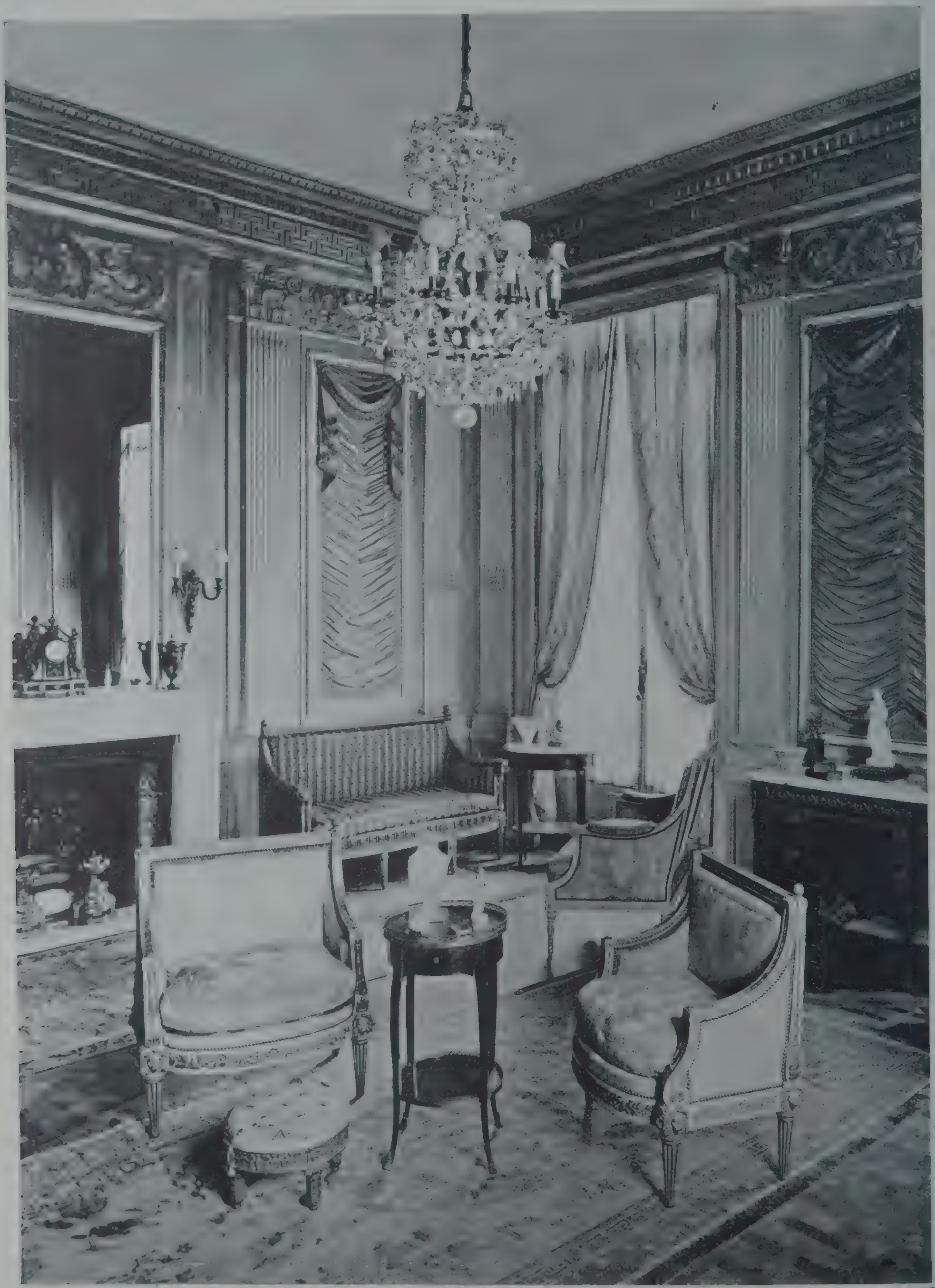

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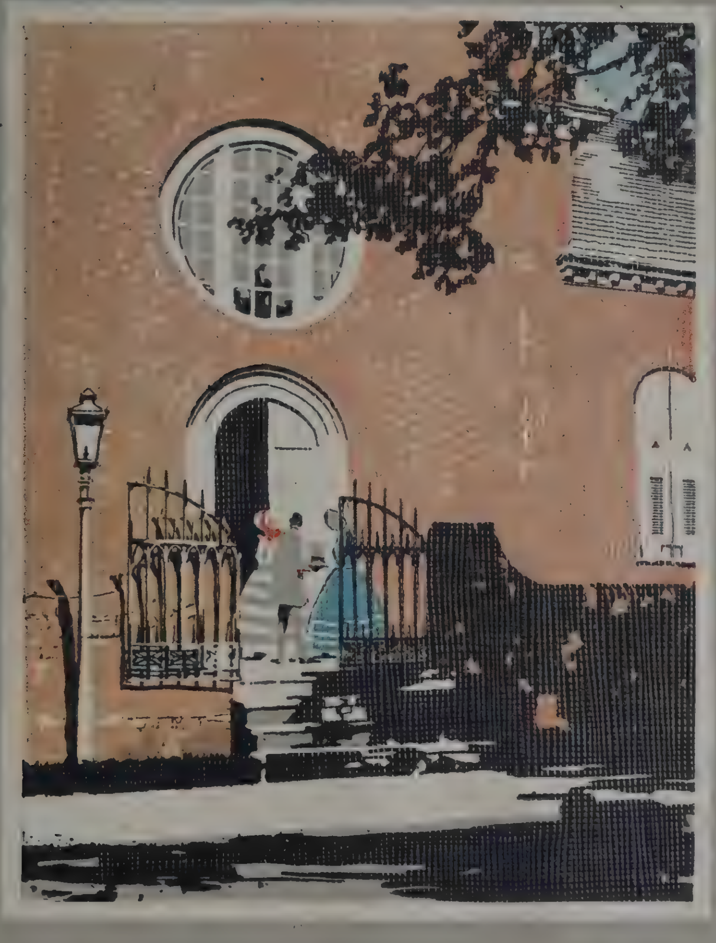
THE ARCHITECTURAL FORUM



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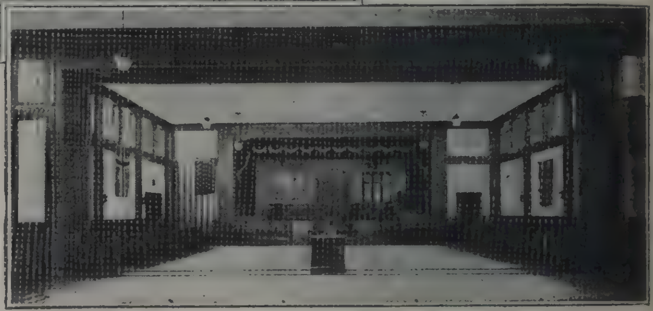

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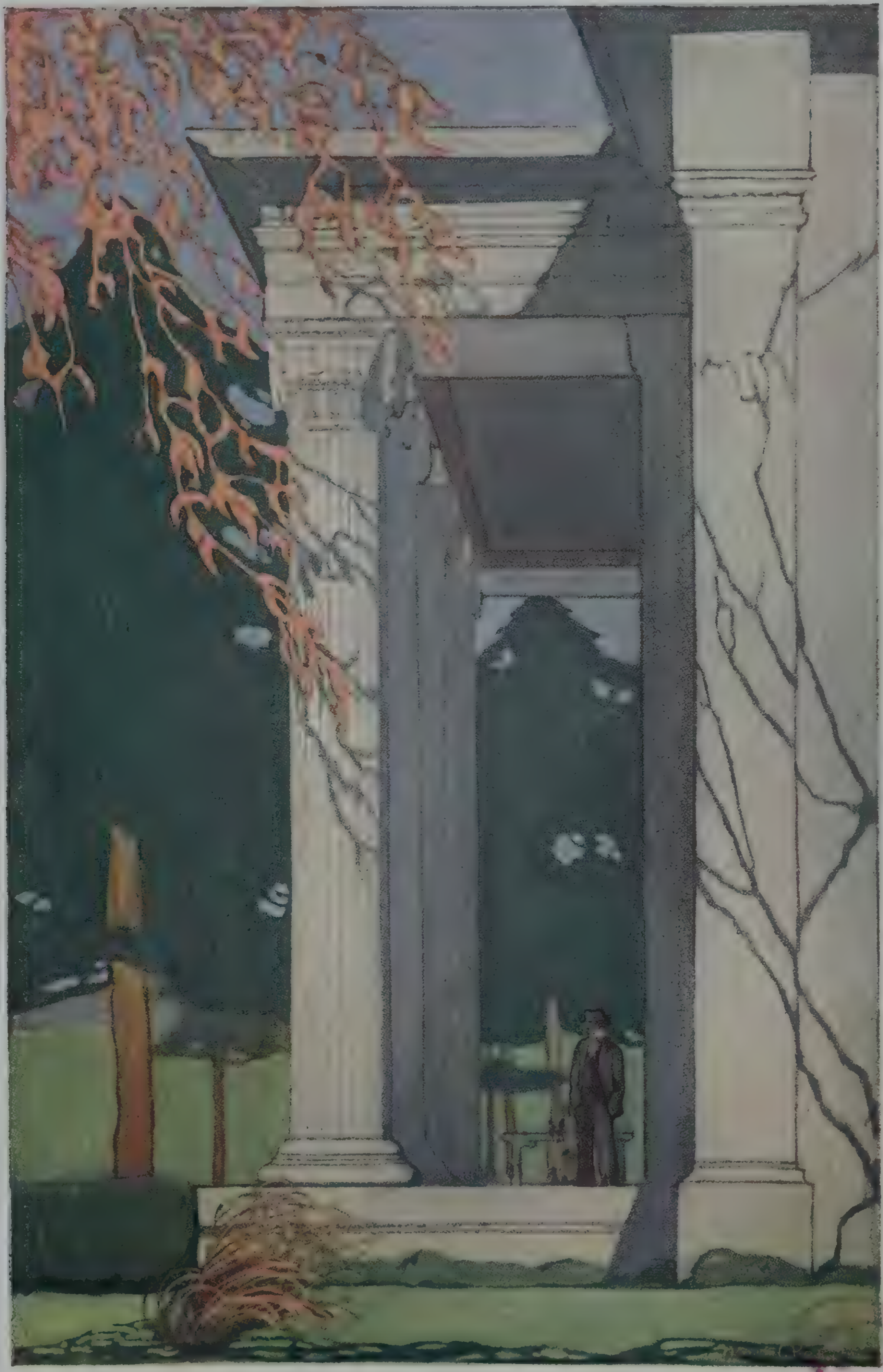


PORTICO, MERCER MANOR, PRINCETON

ORIGINALLY ON THE PHILADELPHIA MINT, BUILT ABOUT 1820

From a Water Color Sketch by Norman C. Reeves

The
ARCHITECTURAL
FORUM

Volume XLIII AUGUST 1925 Number 2

The Maryland War Memorial, Baltimore

LAWRENCE HALL FOWLER, ARCHITECT

By JOHN H. SCARFF

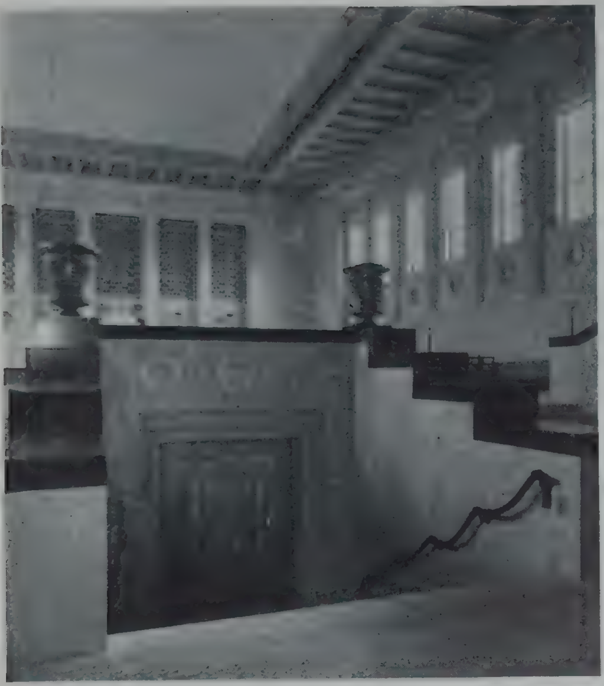
ON November 11, 1920, the second anniversary of the signing of the Armistice, the Mayor of Baltimore approved an ordinance intended "to create a commission to determine upon and to erect a memorial within the state to the men and women of Maryland who gave their lives for their country in the military and naval service in the World War, and to commemorate the service of all other men and women who were engaged in the military or naval service in the War." The ordinance further provided that the commission should consist of seven members, authorized and empowered to act in conjunction with the similar committee previously appointed by the Governor.

The Memorial Commission of the State of Maryland and the Soldiers, Sailors and Marines Memorial Committee of Baltimore City, having been duly appointed, at a joint meeting agreed to act together as a joint commission for the erection of a memorial building. Following the advice of the Baltimore Chapter of the American Institute of Architects as to the advisable procedure for the conducting of a successful architectural competition, this joint commission selected as its architectural adviser Waddy B. Wood, of Washington, and instructed him to prepare a program for an architectural competition, and to assist and advise in its being carried out. The Commission selected to enter the competition 24 architectural firms of the State of Maryland, together with John Russell Pope, Henry Bacon, Cass Gilbert, Carrere & Hastings of New York, and Day & Klauder of Philadelphia. The jury of award, appointed by the Commission from its own members, consisted of E. Brook Lee and Hugh H. Young, representing the state, and Harry C. Jones and John R. King, representing the city, together with Paul Cret, Architect, University of Pennsylvania, Albert Lewis Harris, Architect, of the District of Columbia, and Edward A. Crane of the firm of Rankin, Kellogg & Crane, Architects, of Philadelphia. Such was its personnel.

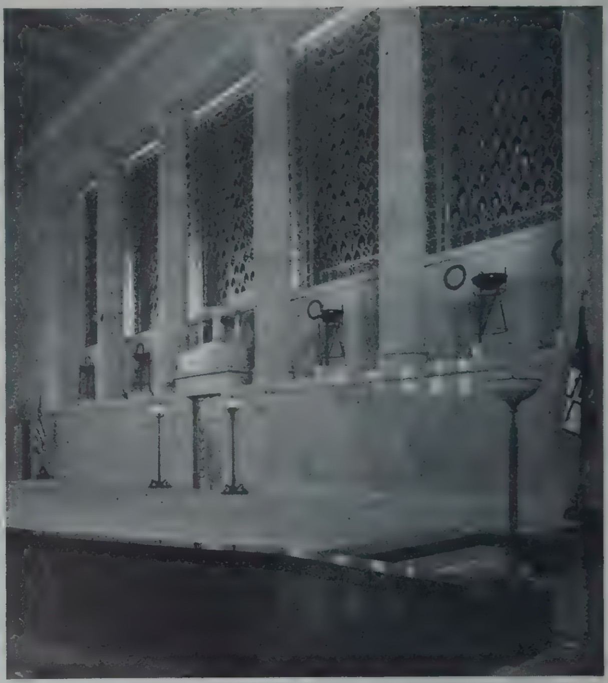
Cost was an important factor in the competition. The published program set forth that no design of a building would be considered that in the opinion of the jury could not be built for $900,000. No limit was put upon the cubage of the structure. The mandatory requirements of the program were: An auditorium or memorial hall "as large as compatible with the general scheme of the building"; a memorial lobby; general executive offices; one or two assembly rooms, and the various service departments, with the exception of the heating plant, which would be located in another city building. All these rooms were to be on two floors. Twenty designs were submitted to the jury of the Commission, and on October 17, 1921, by unanimous selection of the jury, the award was made to Lawrence Hall Fowler.

The site selected is near the business center of Baltimore, on the opposite side from the City Hall of a newly created open square. The building faces streets on the front and the two sides. A municipal office building is being placed behind, and facing away from the War Memorial. It is hoped that eventually the city will acquire all the property bordering this square, and that properly designed and related buildings will be placed entirely around this civic center. This is made all the more desirable because the width of the Memorial Building is considerably less than the distance between the streets bordering it, so that eventually it will count as a building within a large open area, at least two blocks long by one wide. The completed building was dedicated April 5, 1925, with appropriate ceremonies participated in by the officials of both the state and the city, various patriotic, military and naval organizations of the nation and state, and representatives of the different nations associated with the United States during the late War.

The Memorial is built of Indiana limestone, and is in plan a simple rectangle of 102 by 188 feet. The first floor is raised above the ground on a high base, and is treated with a Greek Doric order 49 feet high, the columns themselves being 39 feet high. On the main facade is a portico with six columns, and on the sides and rear are pilasters framing small windows high up in the wall. Above the order is a plain expanse of wall surmounted by a cornice and stone cresting. In the frieze around the building are carved the names of the 24 counties of Maryland, and on the architrave over the main entrance is



Stairway Down to Trophy Hall



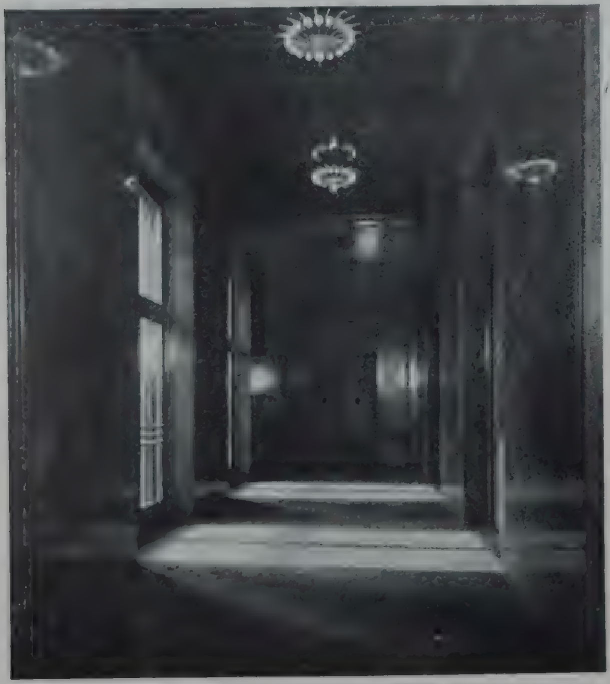
Organ Screen in Auditorium

the motto of the state,—"Fatti Maschi Parole Femine." Behind the columns is the dedicatory inscription:

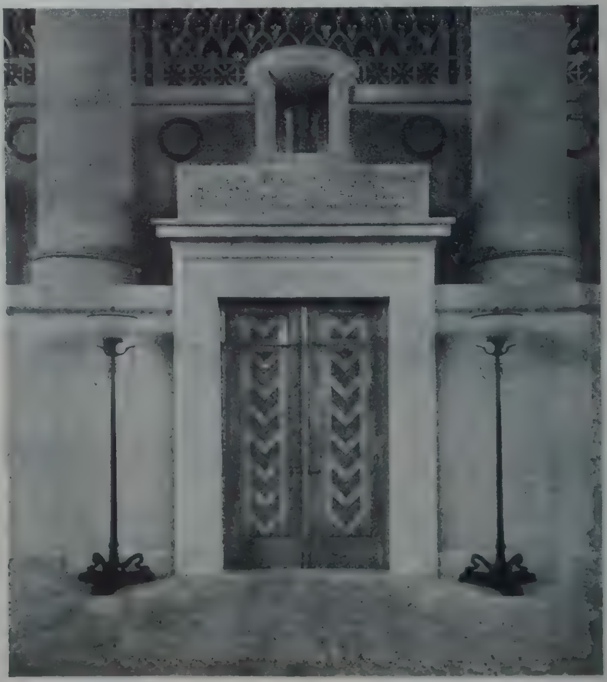
To the Citizens of Maryland
Who Gave Their Lives
And Service in the World War.
By the State of
Maryland
and the City of Baltimore.

The space from the building line to the sidewalk is treated with steps, broad terraces, benches and planting placed on each side of the entrance portico.

Through the three entrance doors one passes directly into a vestibule, which is very effectively lined with Missouri porphyry in large slabs, both walls and ceiling. One then passes into the main auditorium, which takes up practically the whole of the first floor. A broad flight of stairs leads from directly opposite the center entrance to the trophy room on the lower floor, and from each side to the main auditorium at a higher level. At one end of this large and imposing room is the platform with an organ-screen above and behind it, and at the other end a gallery. Around the entire room there



The Entrance Vestibule



Platform Doorway, Auditorium

Detail, End of Platform

Entrance Stairs, Auditorium

extends a graceful and freely treated Corinthian order, raised on a high Tavarnelle base on which are to be cut the names of those Marylanders who lost their lives in the War. On the side, high up between the three-quarter columns, are beautiful leaded windows, glazed with slightly tinted glass. Under the windows in the square panels above the base are round shields bearing the insignia of the different divisions of the army, principally those in which there were Maryland troops. The central portion of the main floor is depressed about 2 feet below the outer edge along the walls. This raised portion of the floor serves as a communicating passage from the front to the back of the hall. The ceiling is plaster, painted. The great central panel, as large as the central floor space, is plain sky blue, and that portion above the communicating passage is beamed and tinted in soft shades of terra cotta and gray.

Apart from the grace and distinguished dignity of the main auditorium, color is its principal charm. The walls are carried out in the warm shades of the Tavarnelle base. The ceiling is of exquisite blue with warm reds, grays and yellows. The leaded windows are greenish white, and the round decorative

Steps to Entrance Terrace

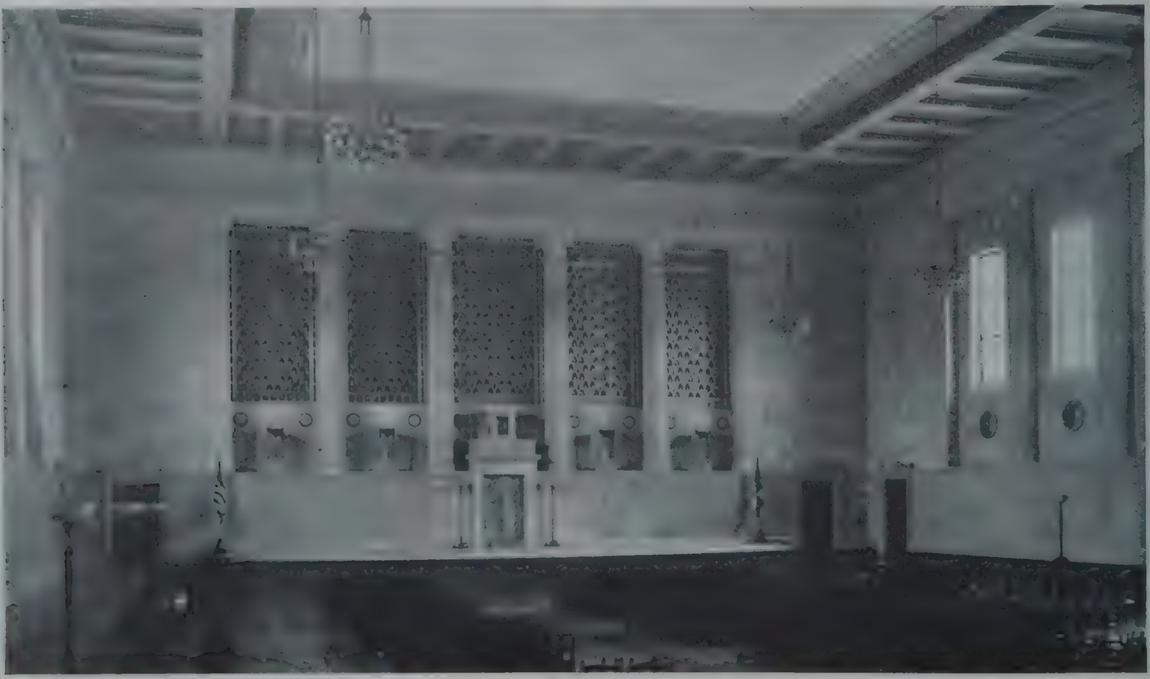
Stalls and Stairs, Auditorium

shields are pewter and pale gold,—like the organ screens. The rear wall of the gallery back of the free-standing columns repeats the terra cotta of the ceiling. The floor is carried out in several shades of sea green terrazzo, and the parapet and stairs are capped with Belgian black marble. The room gains immensely from the fact that there are no fixed seats. Mr. Fowler, with his accustomed attention to detail, has designed beautiful benches in American gum, and simple cane-seated chairs are used when capacity seating is required. The entire room is marked by charm and simple dignity. The detail is carefully thought out, and although it preserves the spirit of Classic architecture, it is freely handled. Delightful color makes the whole room glow, and color has been used with the greatest skill to explain and accent form, and to give interest and unity to the whole design.

The room of the building second in importance is the large trophy room in the lower story, reached by a broad flight of steps from the auditorium, or directly from the street through side entrances. A Pompeian Ionic order surrounds the room and supports a simple beamed ceiling. The base of each column is a dark porphyry drum about one-third the height of the column. The plaster beams of the ceiling are decorated with simple panels picked out in primitive colors. Opening out of this hall, and separated from it only by one line of columns, is an assembly room capable of seating 300. The two rooms may be thrown together by opening a sliding partition behind the columns. The woodwork here, as in the rest of the building, is American gum. Filling in the four corners of the plan are several committee rooms or offices, which open into corridors running parallel to the long axis of the building. These small committee rooms, although extremely simple, are by no means the least interesting part of the building. Mr. Fowler has painted the walls in the most delightful way, using bright but very simple colors,—blue-greens and yellows. The trim and bases are wood, and the floors are of terrazzo. The mechanical plant is located in the front portion of the ground floor under the entrance lobby, and a kitchen and pantries are in a basement.

The Memorial, both outside and inside, is marked by the most dignified simplicity,—on the outside by a simplicity that borders almost on the too severe. This was perhaps the result of the extreme importance in the architectural program placed upon cost. The architect, to soften the silhouette of the building, has placed upon the four corners *acroteria;* but the uncompromising mass of the building remains. If the present writer may be so bold in his criticism, he would say that the exterior treatment of the basement story is weak and inadequately suggests the strength necessary to support the building above, and the treatment of the order on the side wall is not sufficiently bold in scale to be properly related to the order of the portico and the heavy weight of the wall above. As for the interior, the parapets arranged around the combination of stairs immediately inside the main entrance seem unnecessarily high, and in one or two places the contrast of materials is not the happiest. The two black marble vases on the parapet serve a questionable end. Mr. Fowler hopes to see placed on the wall back of the columns in front of the gallery a mural painting.

Adverse criticism is given with but a sporting intent, and it in no way lessens the writer's sincere admiration of the fine spirit of the monument, which in its great effectiveness and beauty reflects great credit upon the state and city that made is possible, and upon the architect who brought it into being.



The Auditorium, Known as Memorial Hall

Banks and Bank Buildings; Part I.

By ALFRED HOPKINS

A NEW building is the bank's best bid for business. This may not come with as much force from the architect as it should, because his function always credits him with the wish to promote that idea. But such is the fact, nevertheless, and to any banker who has gone through the ordeal of building with any degree of comfort, it remains indisputable. Not long ago a financier from abroad came to America and ridiculed the banks in the smaller cities, buildings—as he described them—which are stone and marble mausoleums. He wanted to know why it was done. The answer is simple and entirely adequate: because they bring business. If fake concerns can thrive luxuriantly for awhile in offices which give to the casual customer the impression of stability and integrity, why should not a legitimate business benefit in like surroundings? And the answer to that is the best of answers: that it does.

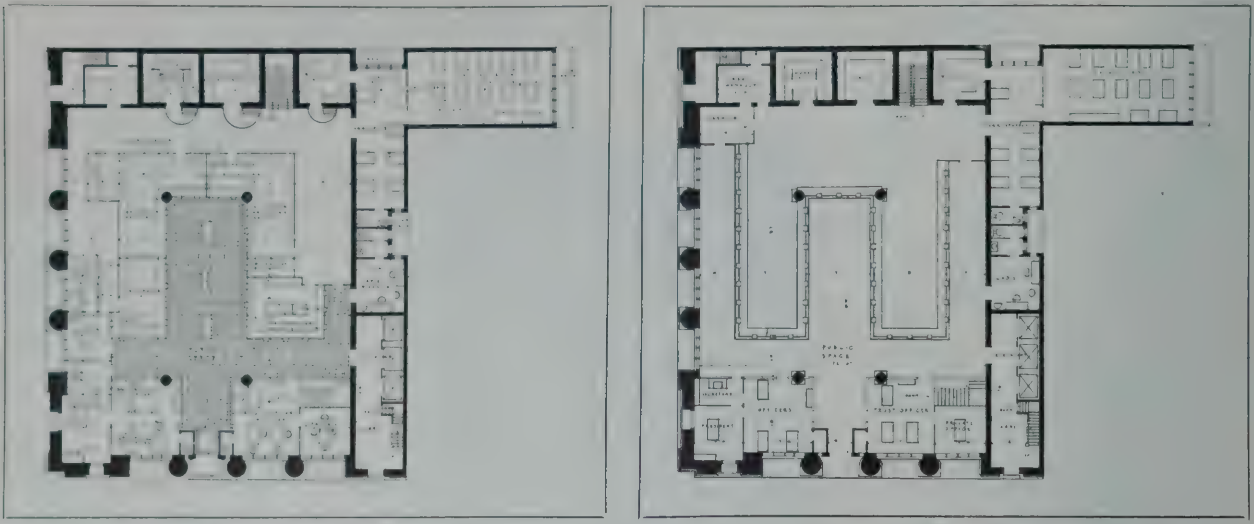
Savings Deposit Bank & Trust Co., Elyria, N. Y.

Alfred Hopkins, Architect

The Lot. But before we take up the building proper, there is one thing (with which the architect seldom has anything to do) that should have careful consideration, and that is the lot. A good location is just as necessary for the bank as for the merchant. The merchant has always been willing to pay for the right place to do business, because it brings him trade. The banker must set his mind to the same thing, and for the same reason; it is just as necessary for the one as for the other to be available to the public. The bank should acquire the best location possible and pay the price for it,—not only the best in point of situation, but also in point of area. I think it is safe to say that nine out of ten banks build too small. My experience, as one who has come in contact with many such problems, is that the average banker when he completes his new structure feels that he is secure for 20 years. At the end of five, we find he has entirely outgrown his quarters, and is probably already holding secret conversations with John Doe about acquiring the adjoining property. Get a good lot, and forget its extra cost. It will prove true economy in the end.

Now as for sizes; 50 feet in width will suffice, though 54 or 56 is very much better. The few extra feet may be put into the public lobby, and nowhere is space more useful than it is there. Then for property depth, 100 or 150 feet, for it is always desirable to have available area at the rear. In a width of 56 feet a single expansion of the screen can be made. Generally there is not the urgent necessity for a width greater than this, up to 70 or 75 feet. In 70 feet or over a double expansion of the screen may be made, and a lot this wide need not be proportionately so deep. But a wide lot is always an advantage. From the very inception of the plan, the possibility of future expansion should be had in mind. It is a matter of importance.

Expansion. We have said that from the very inception of the plan the possibility of future expansion should be made certain. While the various plans will show how this may be done, by the rearrangement of the screen, officers' quarters, work space, etc., there is one general principle involved which it is well to keep in mind at the start,—that the bank's growth will be through its contact with the public on the first floor, and that there will never be too much area available there. Consequently, any department which can go into the basement should be put there, and among the first things to be relegated to this location are the vaults. The bankers in the smaller cities have been a little reluctant to accept this view, and as a result we usually find the vaults in the very center of things on the banking floors,—of course with the great doors as an important advertising asset. This is all very well for a few years, but usually having such an arrangement is a great mistake. There is nothing which so complicates future expansion on the main floor as the safe deposit vault, and particularly in a central location. With the safe deposit vault in the basement there is more space to provide the necessary accommodations in the way of coupon booths, consultation rooms, etc. A larger vault may be constructed in the basement and expansion for the safe deposit department provided, which is just as important as expansion anywhere else. With the increased area available, a vault for trunk and silver storage may be had. This is coming to be more and more a service which the bank gives its customers, and in some localities it is one of the essentials of the safe deposit department,—and I have no doubt that providing cold storage will some day be one of the



First Floor Plan—27 Wickets

Expansion of First Floor Plan—42 Wickets

The Mechanics' National Bank, Trenton, N. J.
Alfred Hopkins, Architect

regular features of this service. The basement is also an excellent location for the women's room, much better than the first floor, where it has been the custom to place it. There is a relation between the trust department and the vault, where its securities are kept, that makes the basement available for that purpose, either in the first instance or or as a result of necessary expansion. Public conference rooms are appropriately placed in the basement, and in some communities they are a valued accommodation to the bank's clients. The bank having a large foreign department always finds the basement available for it. But the essential thing to get off the main floor is the vault. With that in the basement, the whole task of arranging the plan has been greatly simplified. Expansion may now be provided, and the best type of plan determined.

Types of Plan. A few years ago there was some controversy as to which was the best of the two or three possible plans. The "U-plan" or the "island plan," so called. For a savings bank, the island plan does very well, and in some instances it is the best for that type of institution; but in the commercial bank the U-plan has generally been adopted, and it is better than any other arrangement. To begin with, the public is more easily distributed, directed and accommodated. Service is more easily rendered, and the effect on coming into the building and looking down into a wide public area is ever so much better. As to the width of the public space, 18 feet is perhaps a minimum width; 20 feet is better, 22 excellent, and 24 feet in width gives a real bank, dignified and practical in every way.

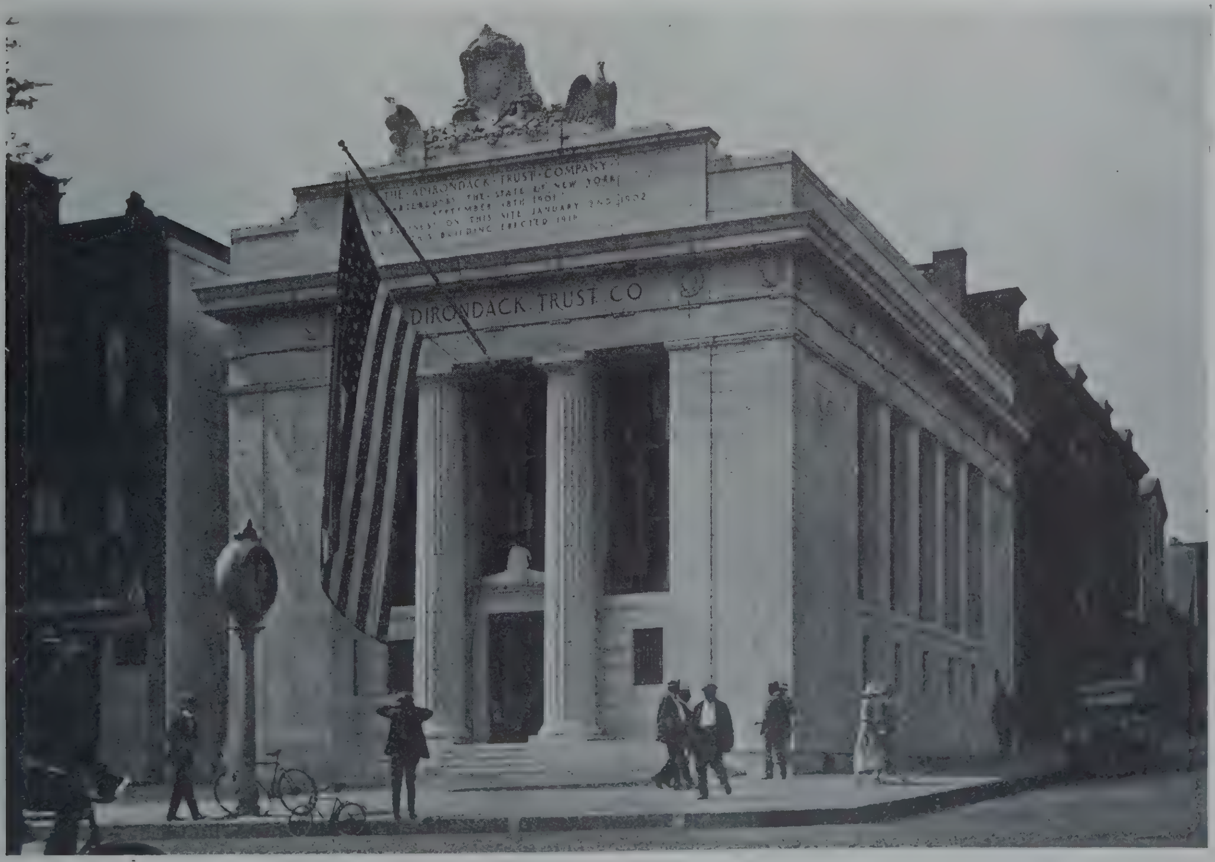
The best location for the officers is at the front of the building. In some modern banks they have been put in the rear. This is not a good plan for two reasons: they are not so accessible to the public, and the officers' open area at the front greatly enhances the effect of space to those entering the bank. It is well, therefore, to make the officers' quarters commodious, and to have the screen start as far back from the entrance as will accommodate the number of wickets desired. When it comes time for expansion, the officers' space may be utilized for the screen, and the officers may be moved to a balcony. As a matter of fact, a low balcony for the executives has proved to be a very good place for them. This position keeps the small business down on the first floor, where it properly belongs, and permits the officials of the bank to give their time to more important matters. In every instance where we have carried this idea out (always as a result of necessary expansion), it has worked well.

Screen Expansion. Of course the great factor in the bank's expansion is the screen. The possibility of altering its arrangement is one of the prime essentials of good bank planning. Such portions as are intended to be moved should be so designed as to be easily removable, and the marble work is best backed up with slate and set up on channel irons. The joints and miters should all be arranged for at the start, so that extra sections of screen may be put in with the least inconvenience. In fact it is sometimes well to purchase additional wickets for converting inactive sections of the screen into active cages. It is frequently convenient to place consultation rooms or offices behind the screen at the start, as these are the easiest to make over into cages. The screen is best made of bronze because it can be made lighter. It should obstruct the eye as little as possible. The lighter it is the less it counts as an element of construction; and the more it becomes a matter of furnishing, the less reason there is for having architectural symmetry. There is no need, therefore, to have the screen start at the same distance from the wall on each side of the room. It is to a great extent a matter of convenience.

Location of Departments. With regard to the location of the various departments, this must be gone into carefully to suit individual requirements.

There are some general rules which usually apply, however. The note cage adjoins the officers' quarters. There is one theory which puts the paying tellers on one side of the public space and the receiving tellers on the other, but not directly opposite one another. When the public area is contracted, this distributes the lines and sometimes prevents congestion. On the other hand, it is well to put the paying and receiving tellers, who are always the busiest, where they receive the most advantageous light. This should come from the side or back. It is trying to have to face the light all day. If the building is lighted on one side, then all the tellers are better on that side. The public likes this arrangement too. With a wide public space, any arrangement of tellers may be had, and there is no advantage in putting the paying and receiving cages on opposite sides. The savings department is well placed on one side, so that the lines to its windows may be separate, and that its customers may come in and go out with as little interference with the commercial part of the bank as possible. These departments are best apart.

Workroom. The smaller city bank prefers to have the workroom on the first floor. This is a good place for it, provided there is area enough. The workroom located here should be so designed that it can be taken out eventually and the space used to enlarge the banking room. The metropolitan banks, of course, have all their workrooms on the upper floors, and it is entirely satisfactory to locate them there even for the smaller institutions. The telautograph, the pneumatic chute, the electric lift, intercommunicating telephones, etc., make the second story workroom accessible and convenient. In fact many bankers in the smaller cities have told me that they prefer to have the bookkeepers out of the banking rooms. The written word between the tellers and the bookkeeping department is a better record than the spoken. Mistakes are less likely to happen. If the workroom is put off the main floor, it is better on a floor entirely by itself. This work should never be done on open balconies in the banking rooms. Such balconies are noisy, always spoil the architecture, detract from the dignity of the interior, and are usually poorly ventilated, old fashioned and generally out of date. The workroom should be a self-contained room, treated acoustically so that it will not be noisy, and if this is adequately done it is not necessary, in the average bank, to provide a separate machine room. There should be in connection with the workroom, emergency toilets for both sexes, a drinking water fountain, and one if not two wash basins, depending on the number of employes. Usually it is better for the pneumatic tube service to deliver at the center of the workroom, where the bookkeepers may be on one side and the transit department on the other, all items going to either one department or the other in an orderly way. While



Adirondack Trust Co., Saratoga Springs, N. Y.
Alfred Hopkins, Architect

Officers' Space, Suffern National Bank

Suffern National Bank, Suffern, N. Y.

Alfred Hopkins, Architect

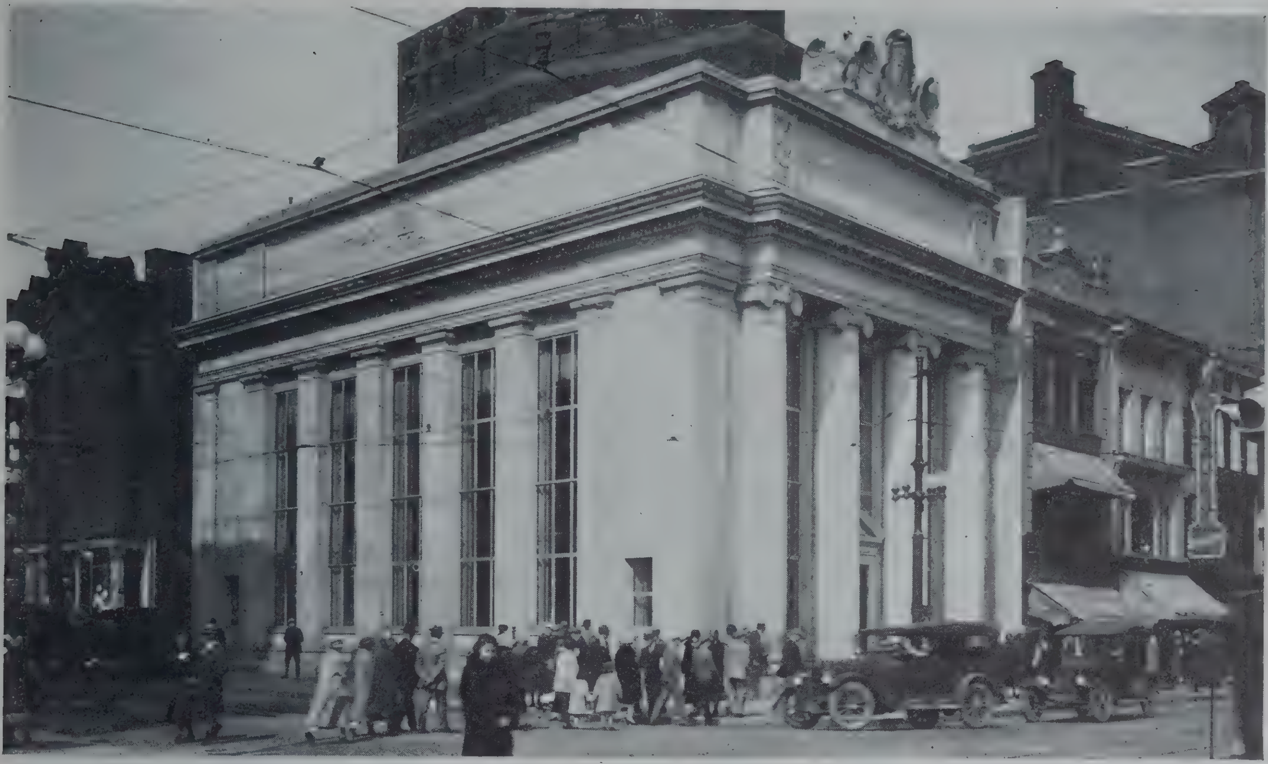
the pneumatic tube is entirely practical and satisfactory, it is not a bad idea to put in an electric lift as an emergency feature. It will often be useful.

Stationery. One thing the importance of which is usually under-estimated and forgotten about in the bank building is having proper facilities for taking care of the stationery. Bank stationery is very important, and its cost frequently runs into considerable money. Even small banks will have five, six or eight thousand dollars' worth of stationery, while the larger banks have anywhere from forty to sixty thousand dollars invested in stationery; in fact, a bank's stock of stationery is frequently larger and more valuable than that of any stationery store in town. For this reason it must have a proper place for its being received, unpacked and stored. The proper place for its entrance is not the front door. Stationery should be delivered to and unpacked in the basement, where the empty boxes may be conveniently burned in the boiler room, and the contents put upon the elevator if the stationery room is on an upper floor. We have frequently tried to work out storage for stationery in the workroom itself, but it is impossible to make this a shipshape arrangement. Stationery is very disorderly in appearance (though it should not be), and having a separate room is after all the best way of providing for it, wherever possible.

Luncheon Rooms. Another accessory of the bank, frequently very desirable, is a luncheon room, or a small kitchenette where luncheons may be cooked. In the smaller cities banks are now coming to provide luncheon for their employes. The usual arrangement is that the bank gives the luncheon and the employe gives half of the luncheon hour for it. Good home cooking is very much better than the restaurant food which the employe gets in the city. All the large banks find it greatly to their advantage to provide such service. The big metropolitan institutions do this invariably, and in many the rule that employes have luncheon in the building is more or less strictly enforced.

Cloak Rooms. As was said before, it is not well to place the lavatories, cloak rooms, etc., in the basement. There is not enough light or ventilation there, and in basement rooms wet garments are slow to dry out. One of the rear mezzanines is an excellent place for such rooms as experience proves.

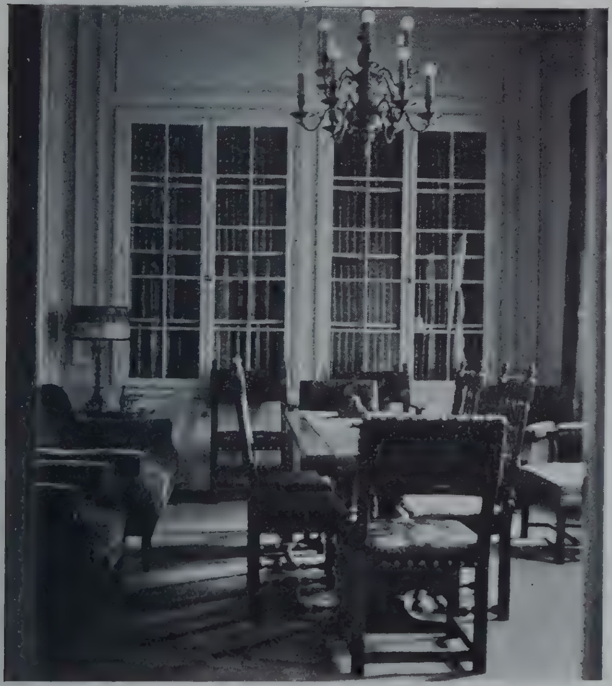
Bank Design. As to the bank's exterior design, good architecture here is a valuable commercial asset. A dignified, Classical building creates in the public mind a feeling of respect and confidence for the institution so housed, but there should be certain features very necessary from the bank's point of view and which are also very appropriate to such architecture. Among these are good large windows, to let as much light into the bank as possible and to permit the man in the street to see in as much as possible. There is no better advertising for the bank than its building. Large windows permit a good view of the interior from the outside, and especially at night when the building should be brilliantly lighted. The bank has long been unwelcome in the merchandising district be-



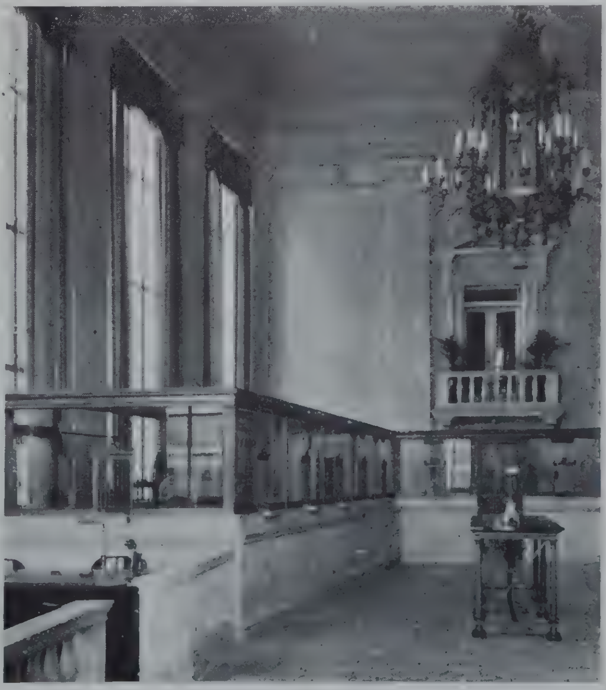
High Attic Walls Provide Space for Lettering. City National Bank, Binghamton, N. Y.
Alfred Hopkins, Architect

cause it creates "a dark corner." There is not the slightest reason for the bank's being dark at night. In fact this policy is particularly stupid. Many banks burn up vast amounts of current in large electric signs upon the roofs, while the buildings on the street are dark. Reverse this policy. Light up the interior of the building, and let the public take a look at the institution. It is sure to pay.

Reverting again to the value of the public's looking into the bank from the street, it is absolutely important to do away with the commercial bank builders' never-failing habit of putting the directors' room across the front of the building, and entering under this in a low story which usually encloses a customers' space on one side of the entrance door, with a women's room on the

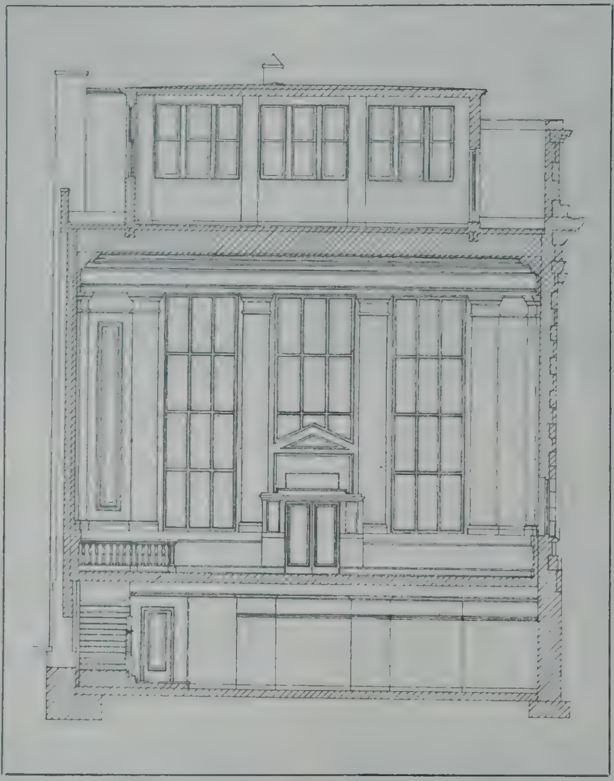


Decorative Treatment of Old Ledgers in Enclosed Bookcases. Directors' Room, City National Bank, Binghamton



Door of Directors' Room on Balcony Overlooks Main Banking Room, City National Bank, Binghamton other. This shuts off the front of the bank from public view in the worst possible way. The mezzanine is very useful in bank construction, but it should always be at the back of the building and never at the front. In almost every instance it is well to take consultation rooms away from the front windows and put them either back of the screen, if the lot is wide enough, or incorporate them as part of the screen. As a matter of fact, the average banker is likely to overestimate the real necessity for having consultation rooms. All the great metropolitan banks do their business out in the open, and having a dignified officers' space as large as possible is always a great advantage to a bank.

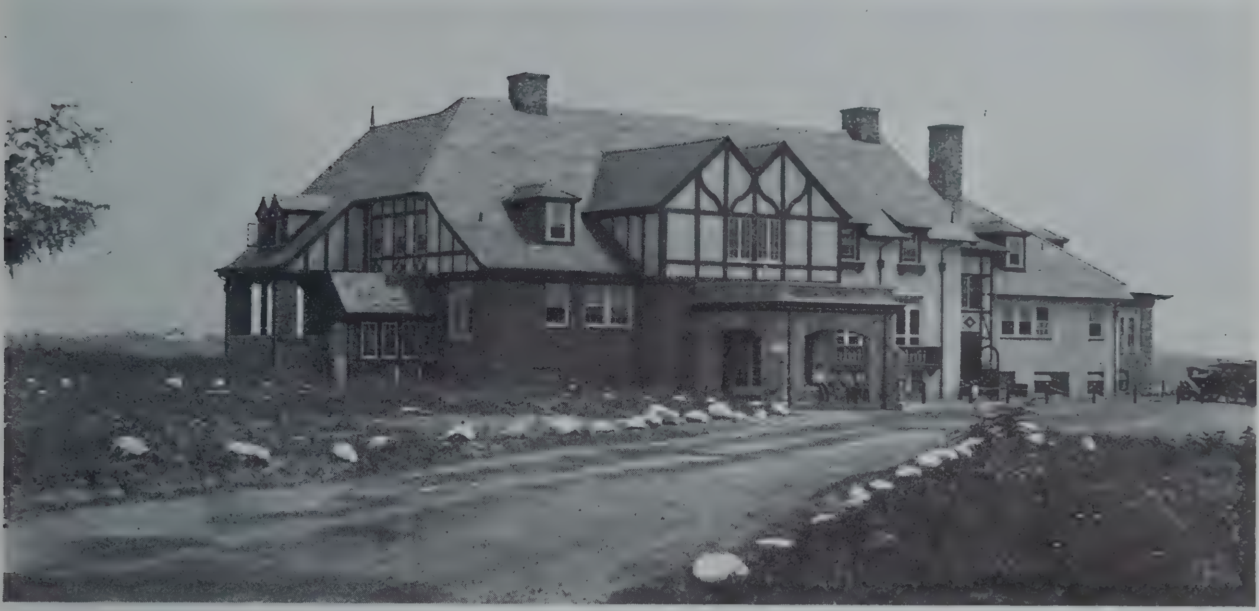
A Specific Example. As the new building for the City National Bank at Binghamton, N. Y., is a carefully planned structure and was designed along the lines here indicated, I would like to give a detailed description of it as illustrating the principles set forth here. The problem was to design a substantial building from the point of view of the exterior. It had to be an "individual" structure, the lot not being of sufficient area to be advantageous for an office building, and it was necessary to build on this corner something that would always hold its own with any buildings which might be built near it. A proper height was absolutely necessary, and in view of the necessity of having large windows below, the only way to secure a dignified effect was to rely on masonry above, adopting precisely the same scheme of design which the Romans used for their triumphal arches. Consequently, heavy attic walls (the architects' name for wide masonry areas which come above the main cornice line of his building) were essential. How to get a well lighted and well ventilated workroom and include this feature was the problem. The workroom was therefore set back behind the solid outside walls some 6 feet. By this arrangement it was easy to fill the workroom walls with windows, which would not have been possible if the workroom had been extended to the outside of the building. Here the windows would have had to be treated architecturally and not commercially, and here skylights were out of the question. It would seem at first that the blank outside walls, only 6 feet away, might make the workroom dark, and that sufficient light would not get in between the outside walls and the workroom walls. This happily proved not to be the case; in fact the outside walls do not seem to darken the workroom at all, and if they were removed altogether the workroom would be very little lighter than it is now. It is amply lighted with numerous windows on all four sides, and is ideally ventilated. This is really an excellent arrangement for a workroom in an individual bank building. In fact the entire plan of this bank may be studied to advantage. The area was small, smaller than we wanted, so it was necessary to take advantage of every square foot of land. The safe deposit department was put in the basement story, together with the women's room and the trunk storage department as well.


Section Through City National Bank, Binghamton, N. Y., Showing Workroom on Roof

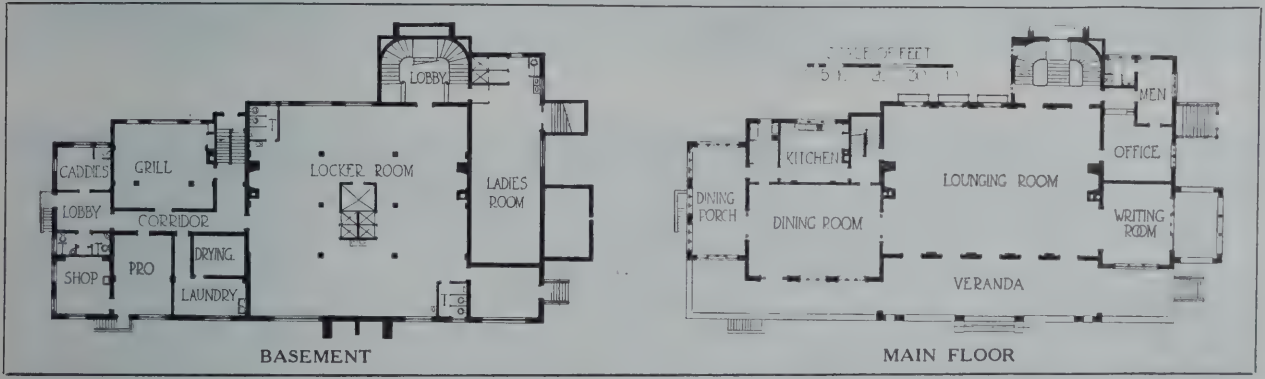
The main banking room has a height of 35 feet in the clear, and has been laid out to provide for future expansion. The president's office at the side is just wide enough to provide at some time for two cages, and the extra wickets necessary were furnished by the bronze contractor for this purpose. On the other side, doing away with the officers' quarters, the screen is planned to extend toward the front, leaving only enough place for a stairway to the future officers' balcony. The directors' room was put on a mezzanine at the rear and has excellent ventilation. A new idea was tried out here, and it has been very generally commended. Instead of having a long table with chairs around it, in the usual way, it was determined to make this directors' room more of a library in effect. It is fitted with comfortable chairs, writing desk, sofa and a table only large enough to accommodate the presiding officer and the secretary. Not the least interesting feature of its decoration is the bookcase at the end, holding the old ledgers and cash books, which go back to 1852. This arrangement of the directors' room has been popular from the beginning, and is one of the bank's most successful details. It is as different as possible from the usual, conventional board room.

The Country Club, Roanoke, Va.

SMITHEY & TARDY, ARCHITECTS

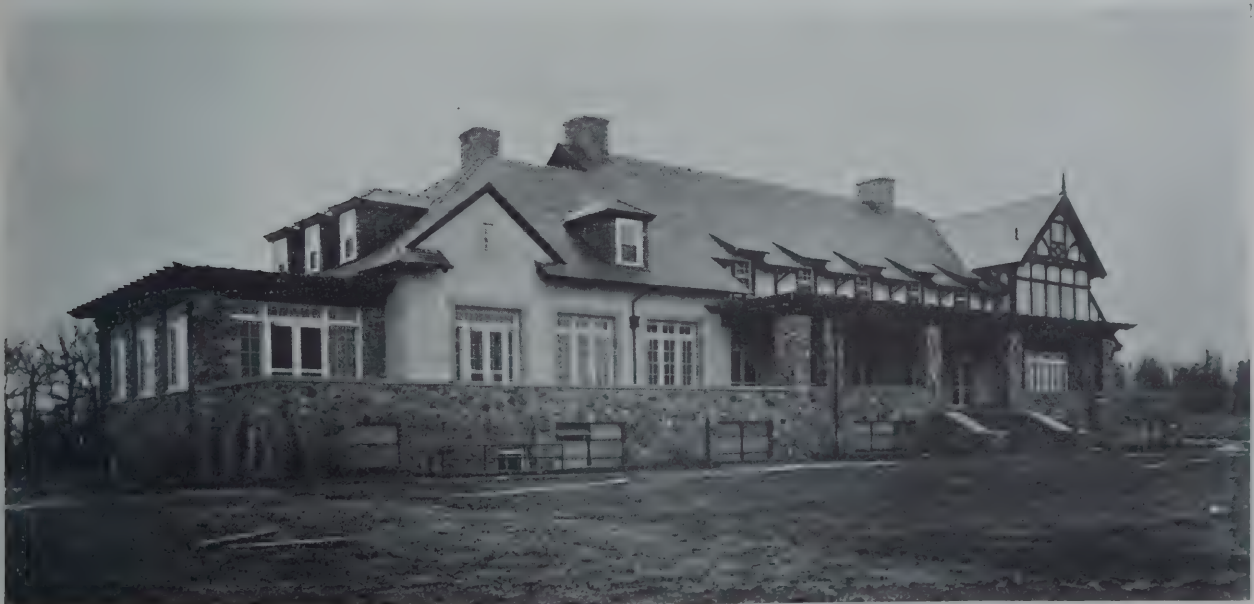


VIEW OF THE ENTRANCE FRONT

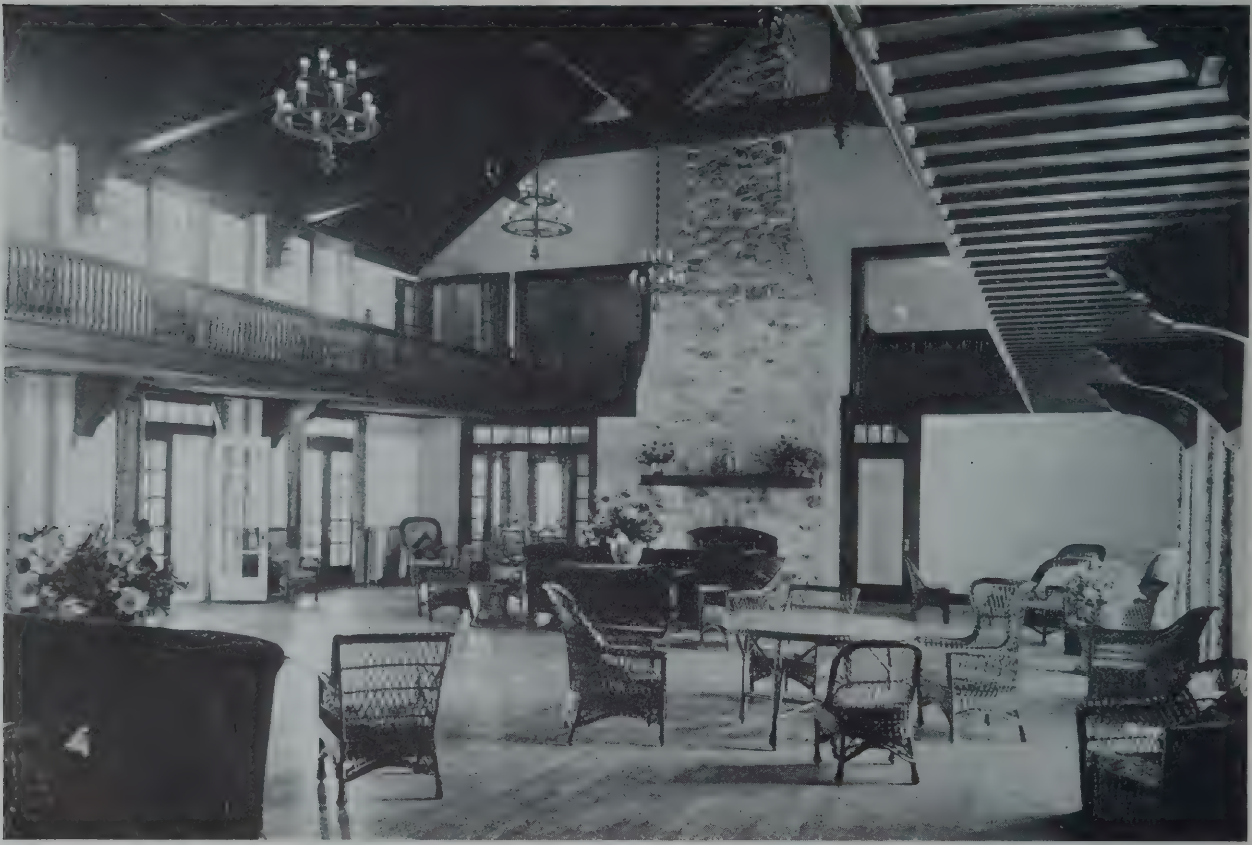


BASEMENT

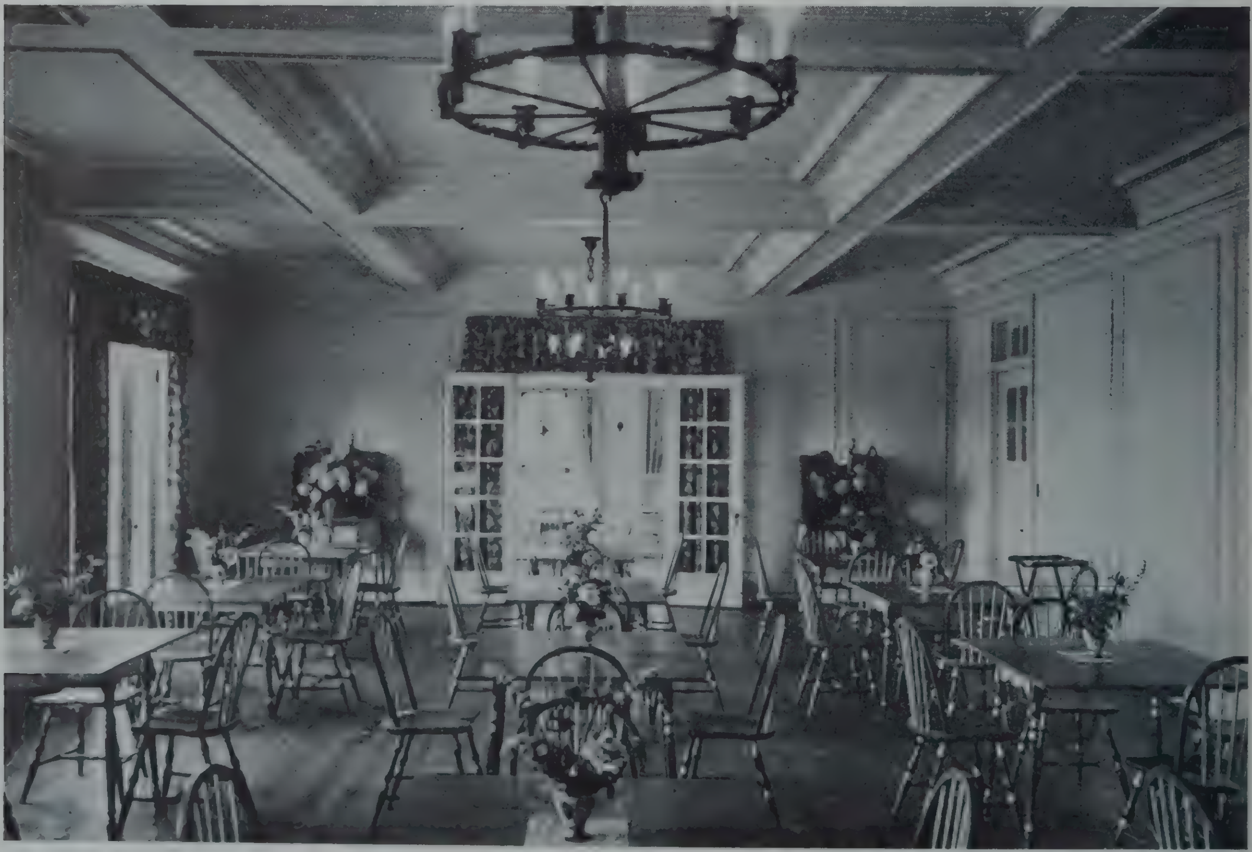
MAIN FLOOR



THE CLUBHOUSE AS IT OVERLOOKS THE GOLF LINKS



THE LOUNGING ROOM



DINING ROOM

THE COUNTRY CLUB, ROANOKE, VA.

SMITHEY & TARDY, ARCHITECTS

The Community Playhouse, Pasadena

ELMER GREY, ARCHITECT

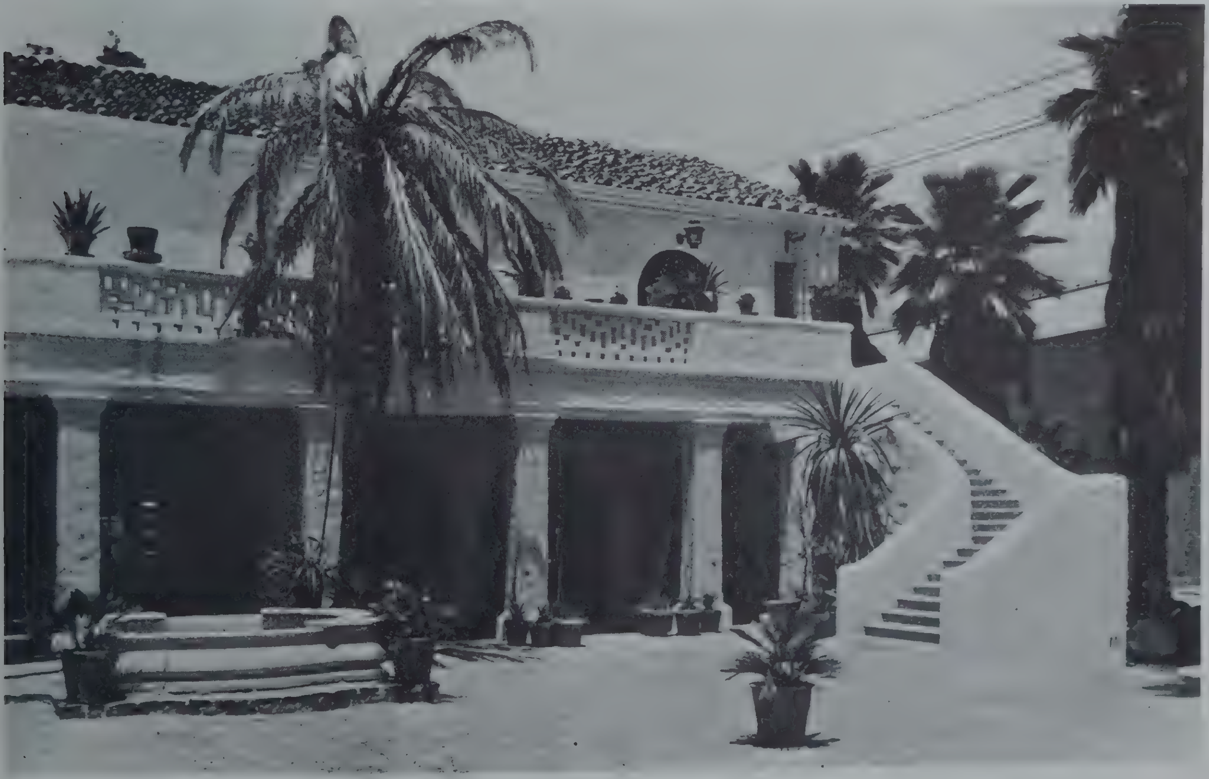
By MARGARET CRAIG

THE new Pasadena Playhouse will undoubtedly become the prototype of many a community theater throughout the country. Its beauty of architectural treatment alone is enough to afford inspiration to those seeking a model of a small, modern theater structure. It is built in the version of the Spanish style known as "early Californian" architecture, and its white, hand-troweled plaster walls, rising in even tiers from the entrance courtyard to the lofty stagehouse in the rear, are very dazzling against the blue sky of southern California.

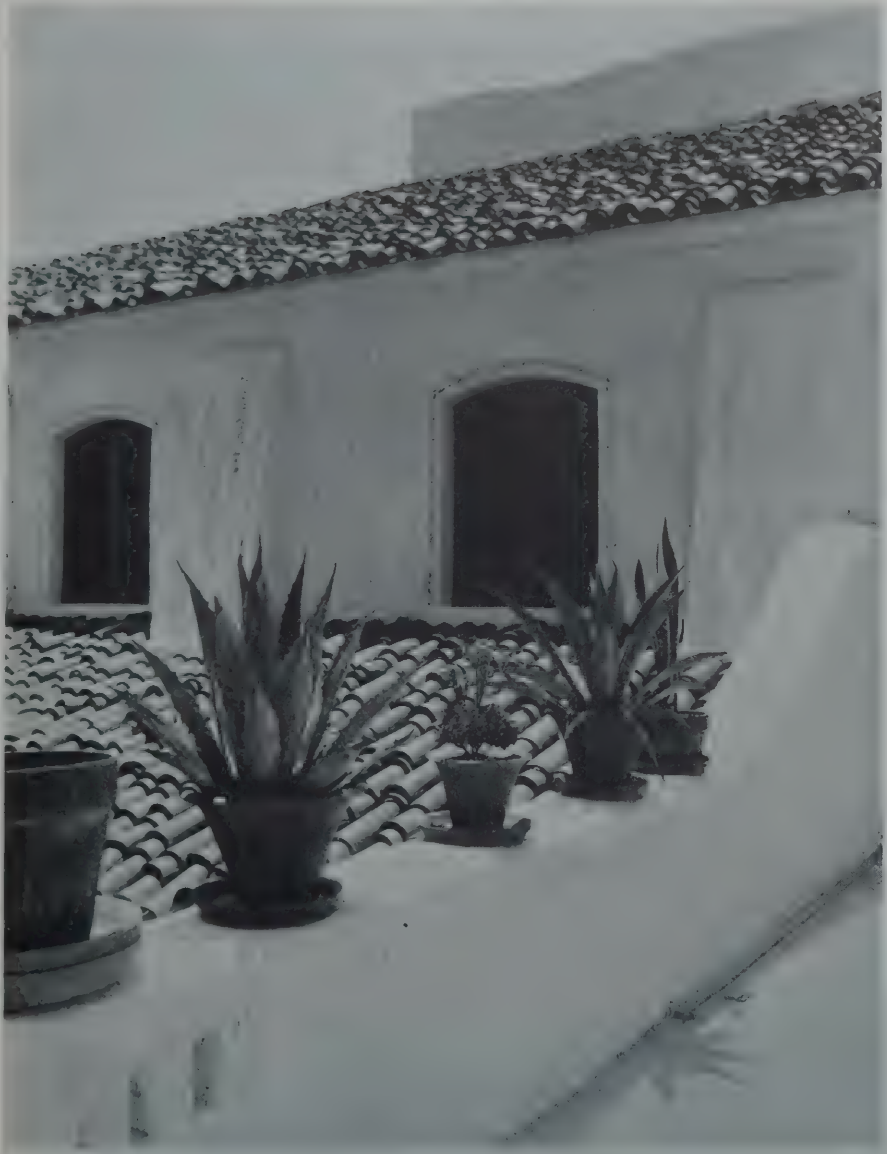
Elmer Grey, the architect, has given to the building much of the quality that is so closely woven into the warp and woof of the drama itself,—humanism, poetry, and aspiration,—and he has achieved in his work the closest correlation of fine proportion, a varied rhythm, and a noteworthy regard for the subordination of details, as well as for the correct dignity of climaxes. The development of the dramatic institution it houses, with all of its affiliated departments, has been logical and always marked by the feeling of simplicity and sincerity, and Mr. Grey has expressed much the same qualities in the building, discarding the unnecessary ornamentation that is so common in theater construction, and relying on the beauty of line as exemplified in the outside stairway, as it swings to the upper story, and on a plan providing for the serving of one function, affording a suitable center for community interests.

Although the auditorium is set well back from the street, it has by way of introduction a most inviting court, with shops on either side, and a covered arcade that borders it on the north and leads to the main portico that gives access to the series of entrance doors. It is a hospitable courtyard, and fittingly indicates the spirit of this communal organization. On every side are arcades and colonnades; a brightly colored tile fountain graces one corner, and a romantic stairway curves easily to the balustrade that is above the entrance arcade. Potted plants from semi-arid and tropical regions are grouped at the bases of the pillars along the top of the balustrade and around the roots of the tall palm trees. The court is paved with golden-hued flagstones that possess an unusual texture, due to the uneven cutting of the stones. The stairway, an important feature of the exterior, rises to the long passage above, where are found a recital hall, and numerous business offices of the governing directors, the play director and their associates, publicity men and the managing committees. From this center the access to the auditorium is easy, the stage and the workrooms being beneath on the first floor.

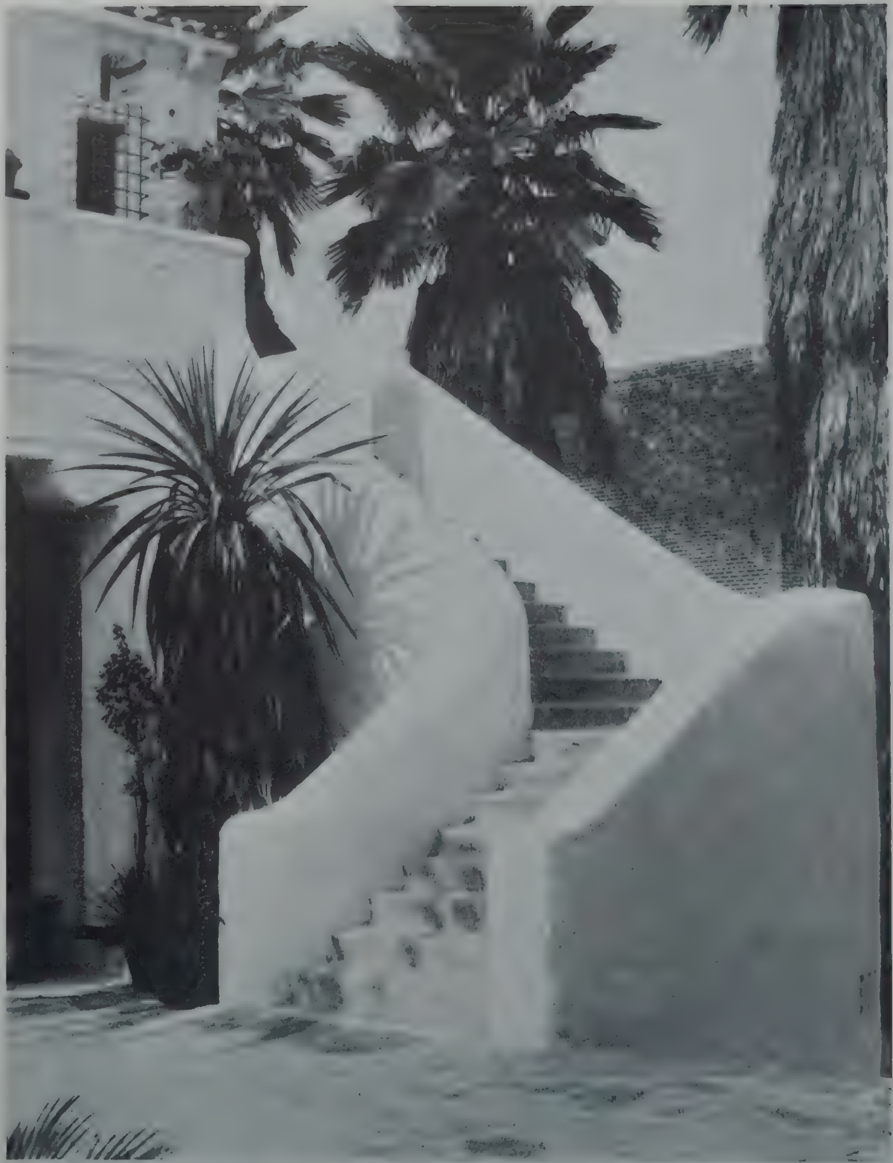
Returning to the court, and passing through the main arches of the arcade, which are especially marked with massive wrought iron lanterns, one reaches the line of entrance doors that open into the foyer. Its walls are of broken tones of blue-green;



One Side of the Entrance Courtyard, Community Playhouse, Pasadena
Elmer Grey, Architect

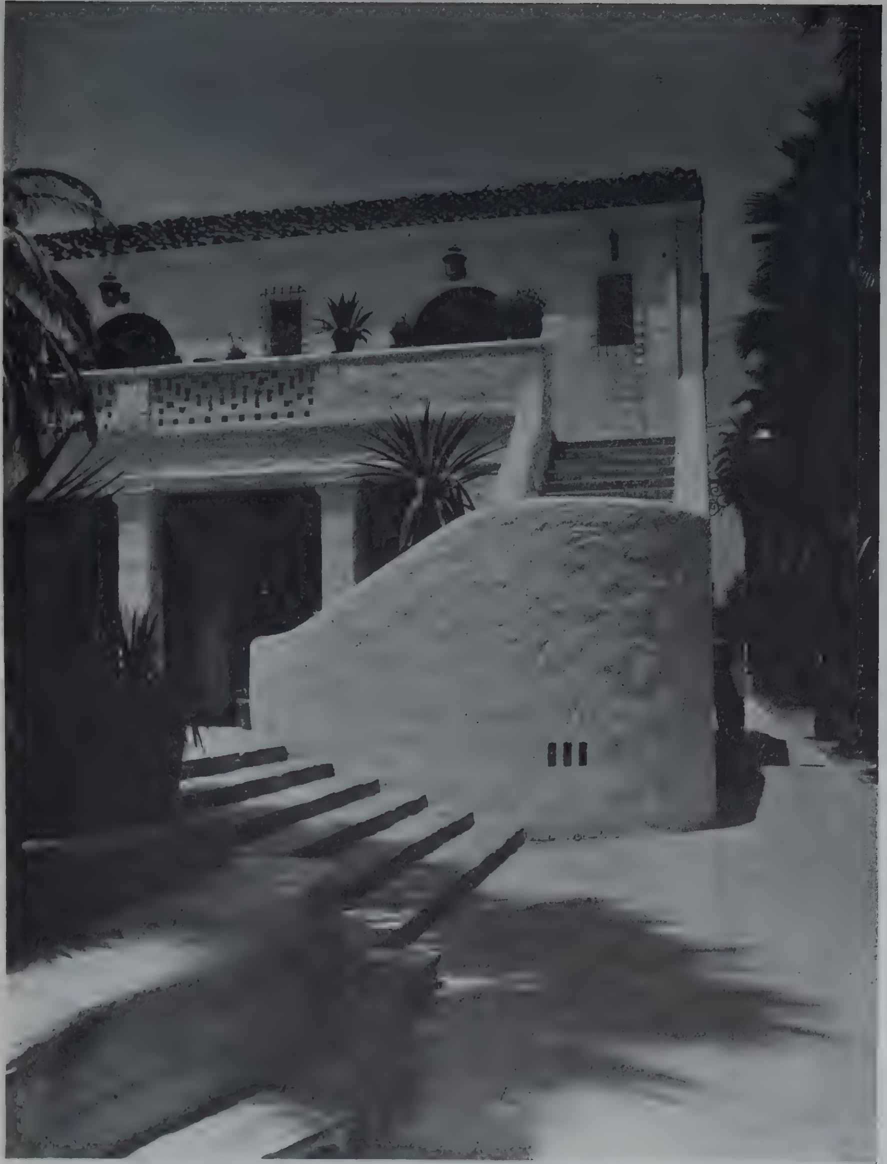


DETAIL, BALCONY PARAPET

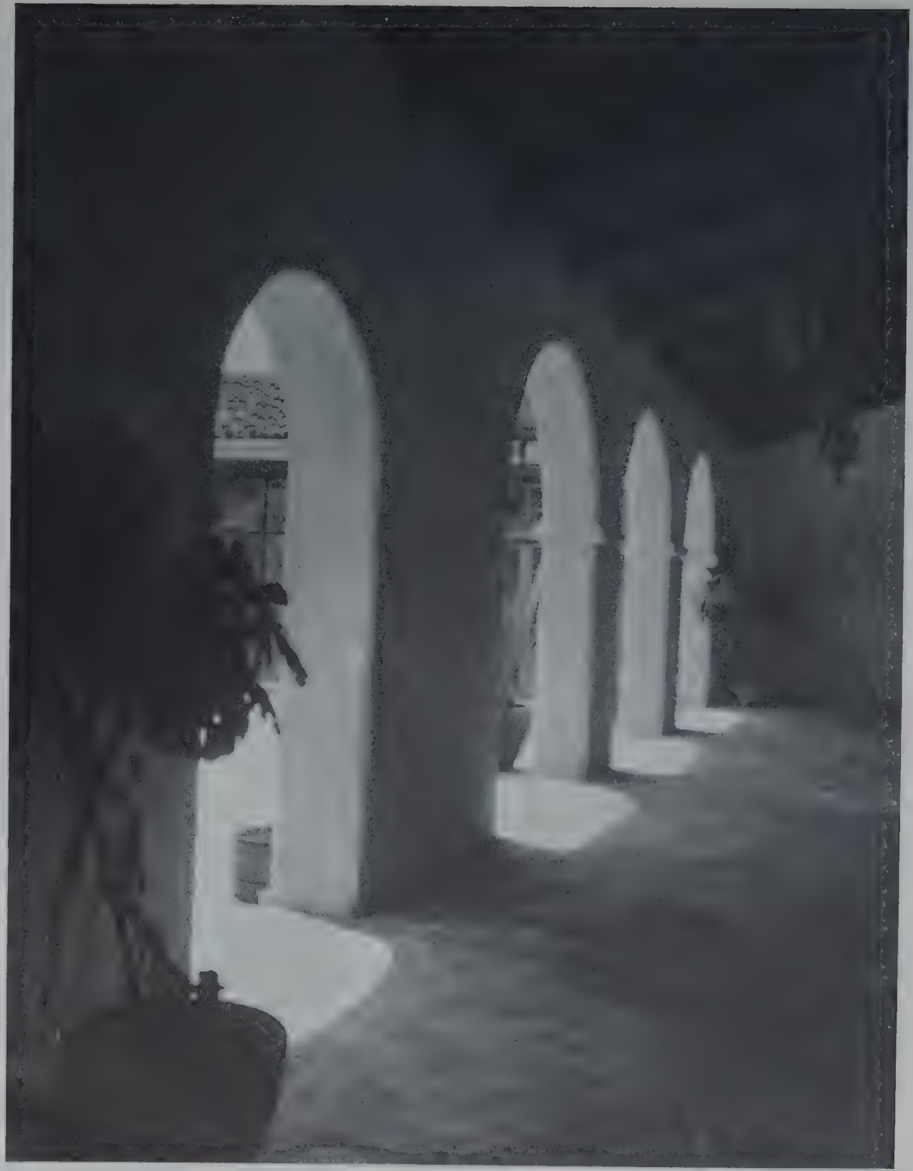


STAIRS TO BALCONY

COMMUNITY PLAYHOUSE, PASADENA
ELMER GREY, ARCHITECT



ENTRANCE AND BALCONY STAIRS



THE ENTRANCE CLOISTER

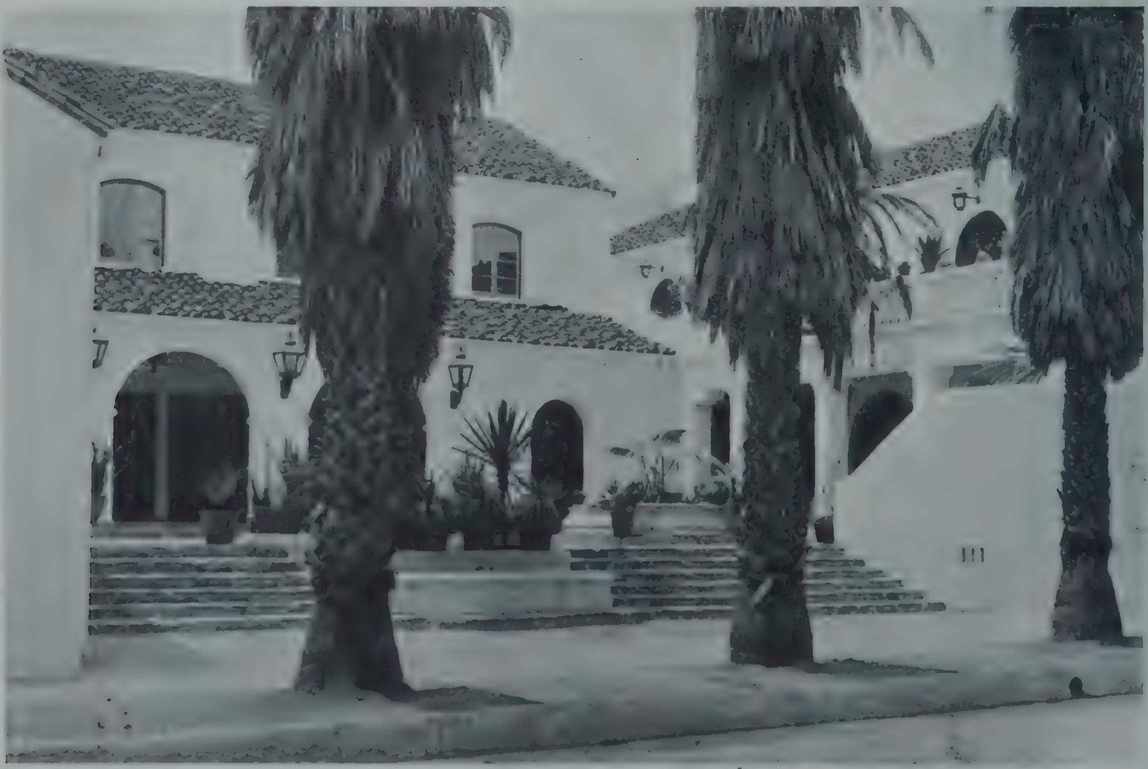
COMMUNITY PLAYHOUSE, PASADENA
ELMER GREY, ARCHITECT

the ceiling, of a still darker value, of cement simulating wood, having been pressed by wooden beams before it was dry. The ornamentation is of richly colored flowers and fruit in oils, slightly toned down with uneven lines of gold leaf. Four doors, hung with heavy, dark velvet curtains, open into the auditorium, and disclose the beauty beyond. The lines of the interior decoration swing around to the stage, and it is not surprising that the painted drop curtain is the first thing to challenge the eye of the visitor. The subject is a huge galleon floating in a sea of ultramarine blue, streaked with dashes of reds and yellows. The ship stands out against a brownish cloud that is shot through with a burst of golden sunshine. It was painted by Alson Clark, of Pasadena, and was a gift to the Playhouse.

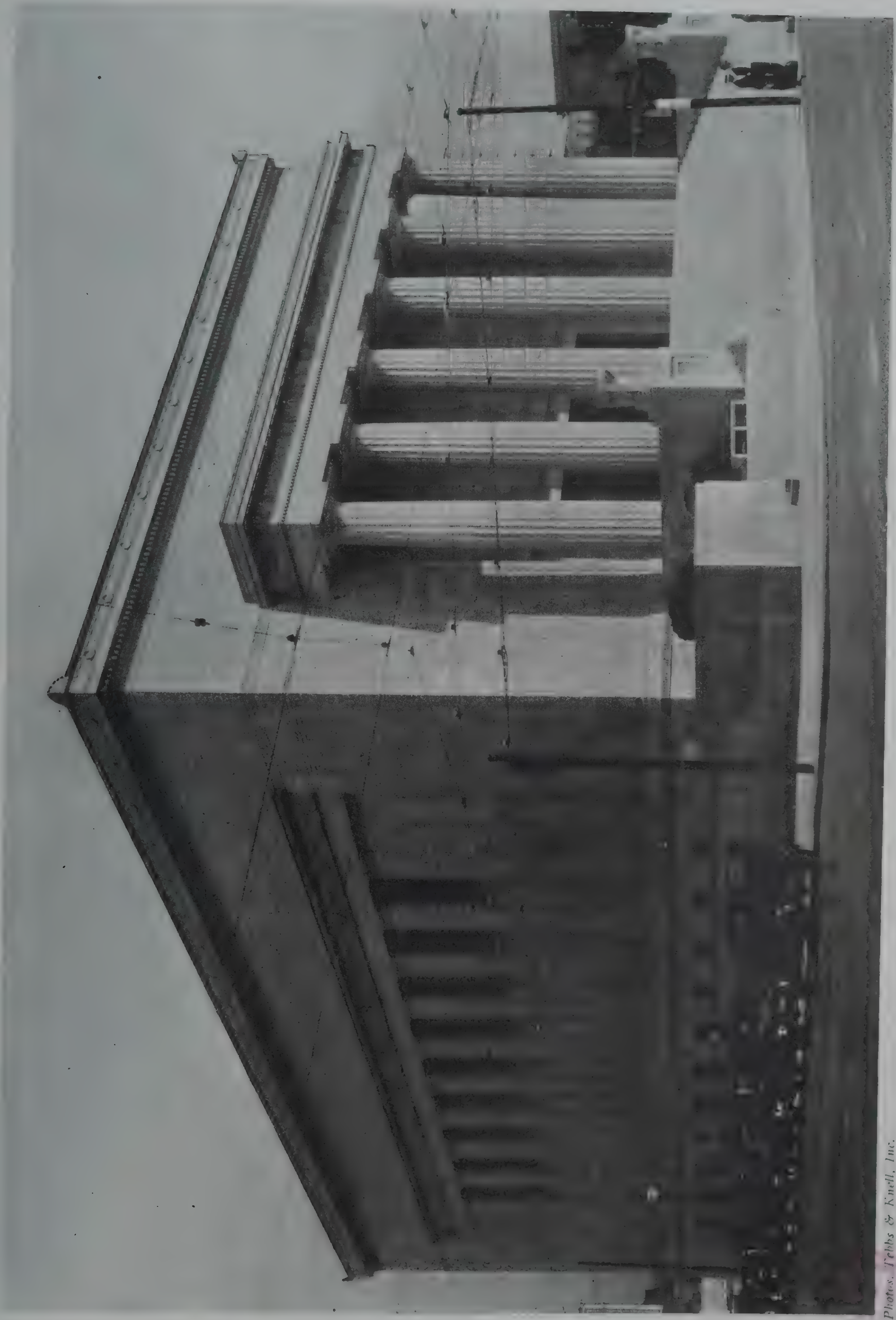
Other notable features of the interior are the balcony which curves around to the two boxes built at the sides of the stage, and the ceiling that in its broad expanse of colorful patterns resembles a bed of larkspur when lighted by a summer sun. The deep coves of the ceiling are arched, and in this way form reflecting surfaces of indirect light. The boxes have shell-like tops, and are decorated in blue and gold. They enclose wrought iron grilles and windows at the second story level. To decorate the side wall spaces there are two windows, framed by borders of terra cotta in relief and hung with velvet curtains. The floor of the stage extends out over the orchestra pit and is reached by steps from the first row of chairs. At either side of the orchestra pit are slightly sloping passageways that lead to the green room on the other side of the stage.

The green room, of a truly Drury Lane character, is an important detail of the theater, and it is destined to exert influences that are important not only for the actors but for the community. It is used as a social center, and for entertainments more or less connected with the drama. Large mirrors occupy the important wall spaces, and between them are red lacquered doors that open into numerous dressing rooms, all well equipped with modern lighting and connected with signal bells. In connection with the green room are the departments for making-up, for the showers, and the kitchen and lockers used by the musicians and ushers. In the north wing, close at hand and easily reached from every part of the building, are the workrooms where many of the costumes are made, where the properties are stored, and where the textiles are dyed for the stage sets. Altogether, the building serves every useful purpose without sacrificing the beauty of architecture. It is a structure that possesses æsthetic value as well as being in accord with the fundamental laws of fine spacing and unified arrangement, and it possesses important qualities that enhance the prevailing sense of comfort and harmony.

The entire cost of the building and its equipment was raised by public subscription, and this fact formed an incentive for all of those engaged in the erection of the structure to carry out each detail with the utmost care and regard for artistic effect. As a monument of modern architecture it is admirably related to its Californian environment, and it will always stand as an expression, a milepost on the road, of community dramatic achievement.



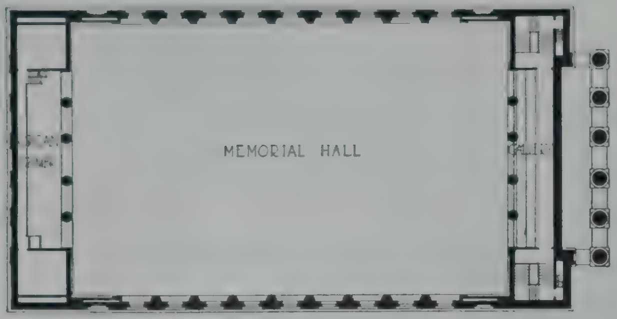
Entrance Court Community Playhouse, Pasadena
Elmer Grey, Architect



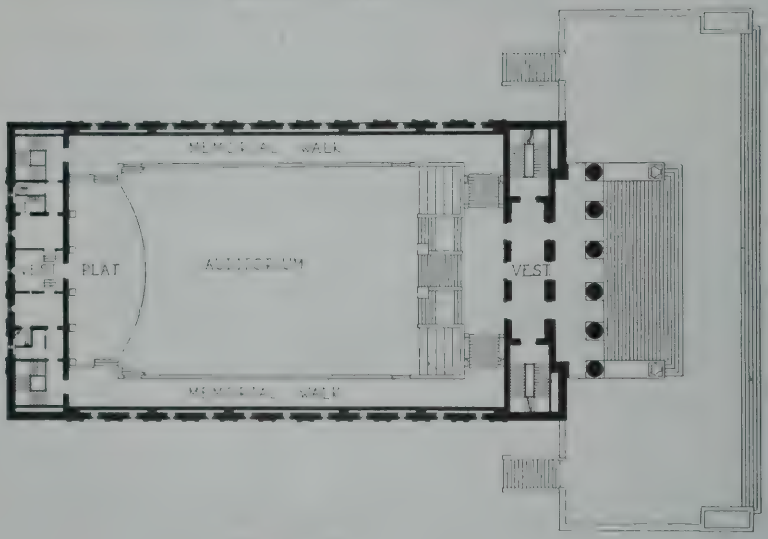
Photos. Tebbs & Knell, Inc.

MARYLAND WAR MEMORIAL, BALTIMORE
LAWRENCE HALL FOWLER, ARCHITECT

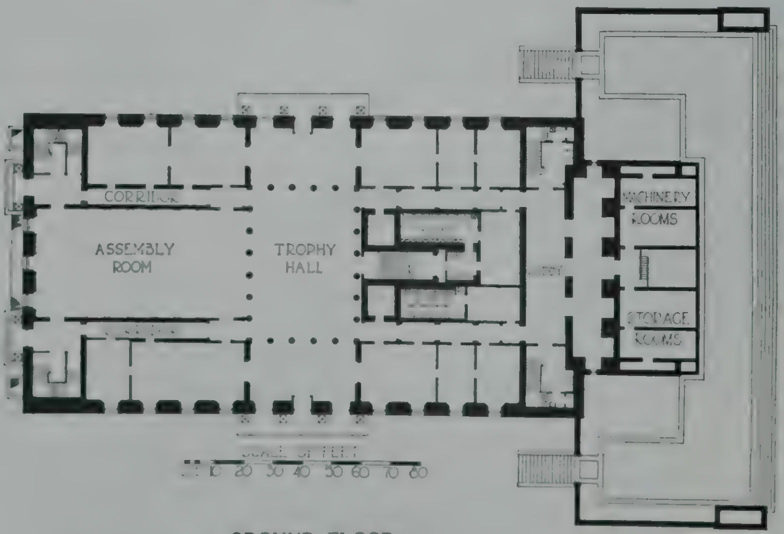
Plans on Back



SECOND FLOOR



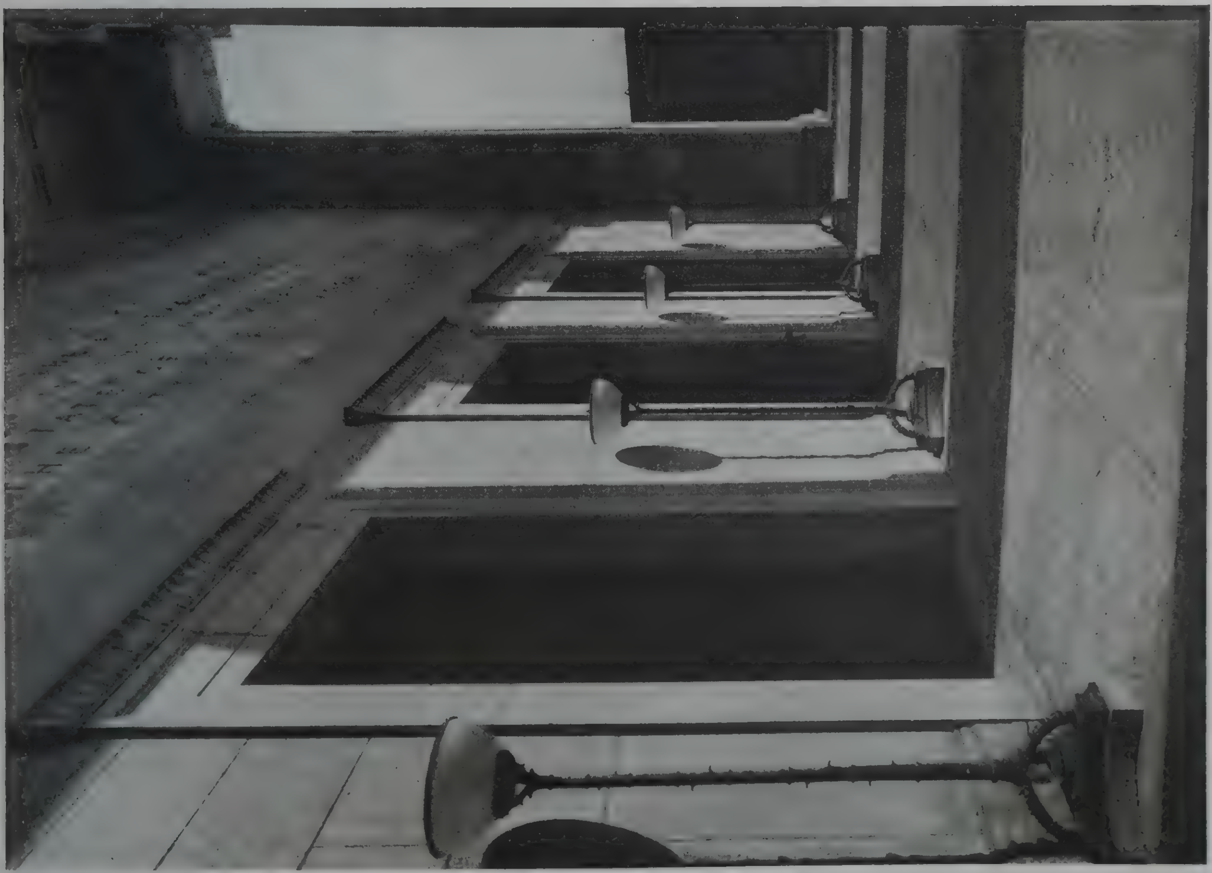
FIRST FLOOR



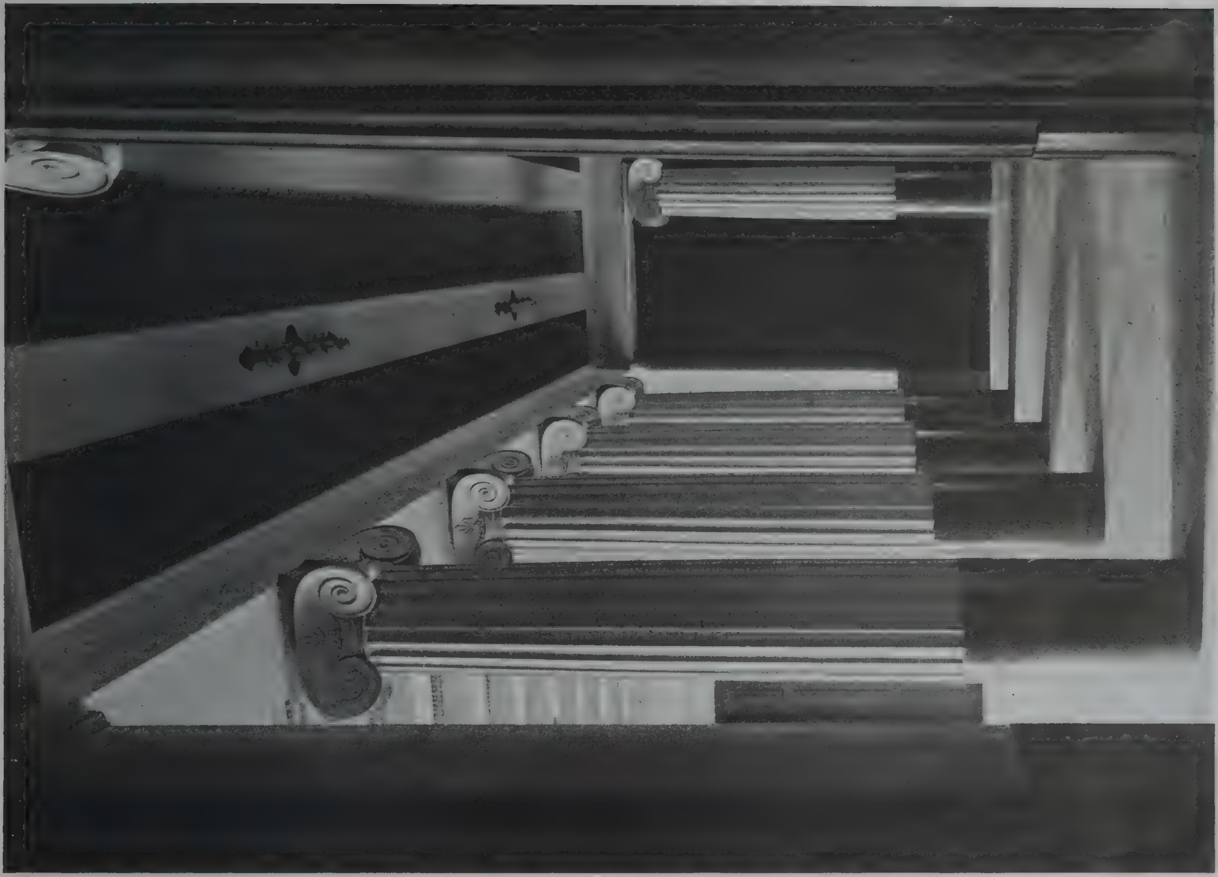
GROUND FLOOR

MARYLAND WAR MEMORIAL, BALTIMORE

LAWRENCE HALL FOWLER, ARCHITECT



ENTRANCE COLONNADE



TROPHY HALL

MARYLAND WAR MEMORIAL, BALTIMORE
LAWRENCE HALL FOWLER, ARCHITECT

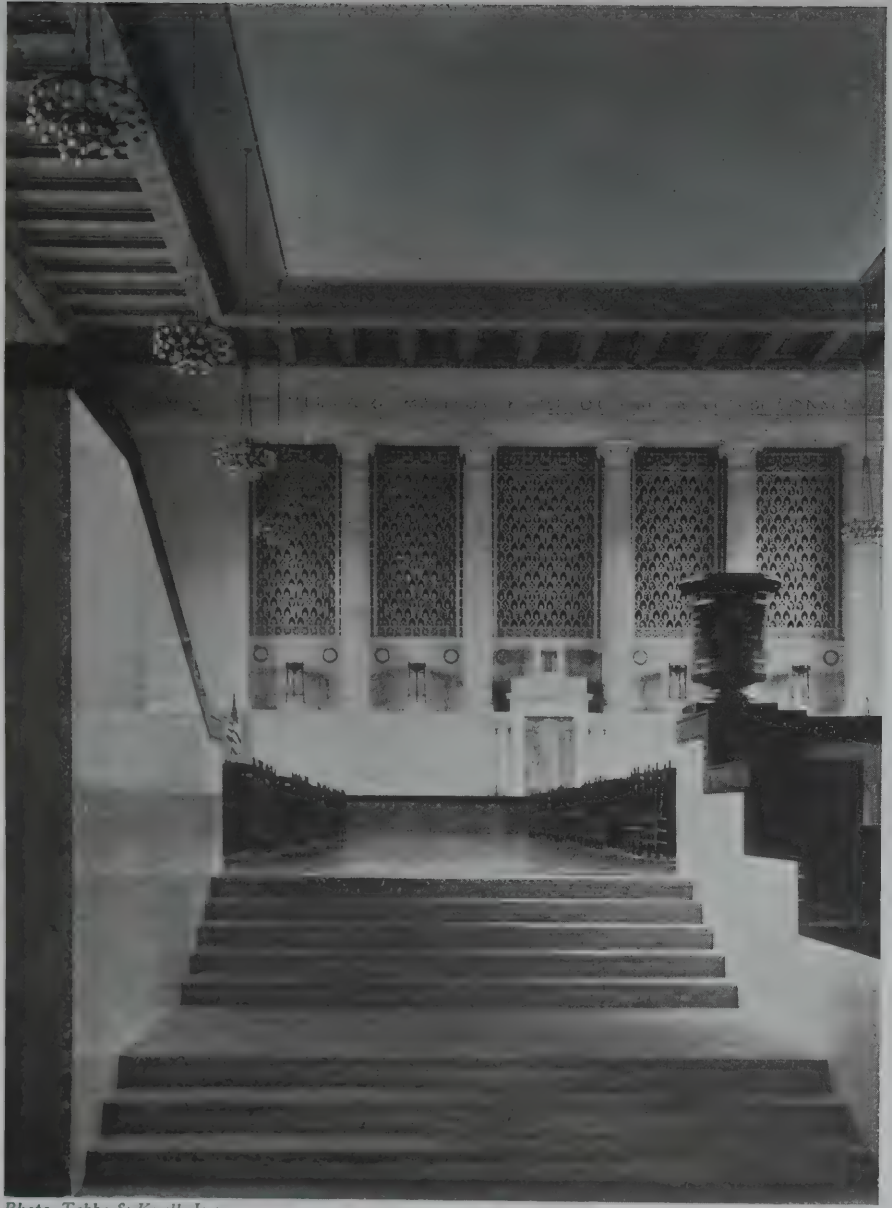
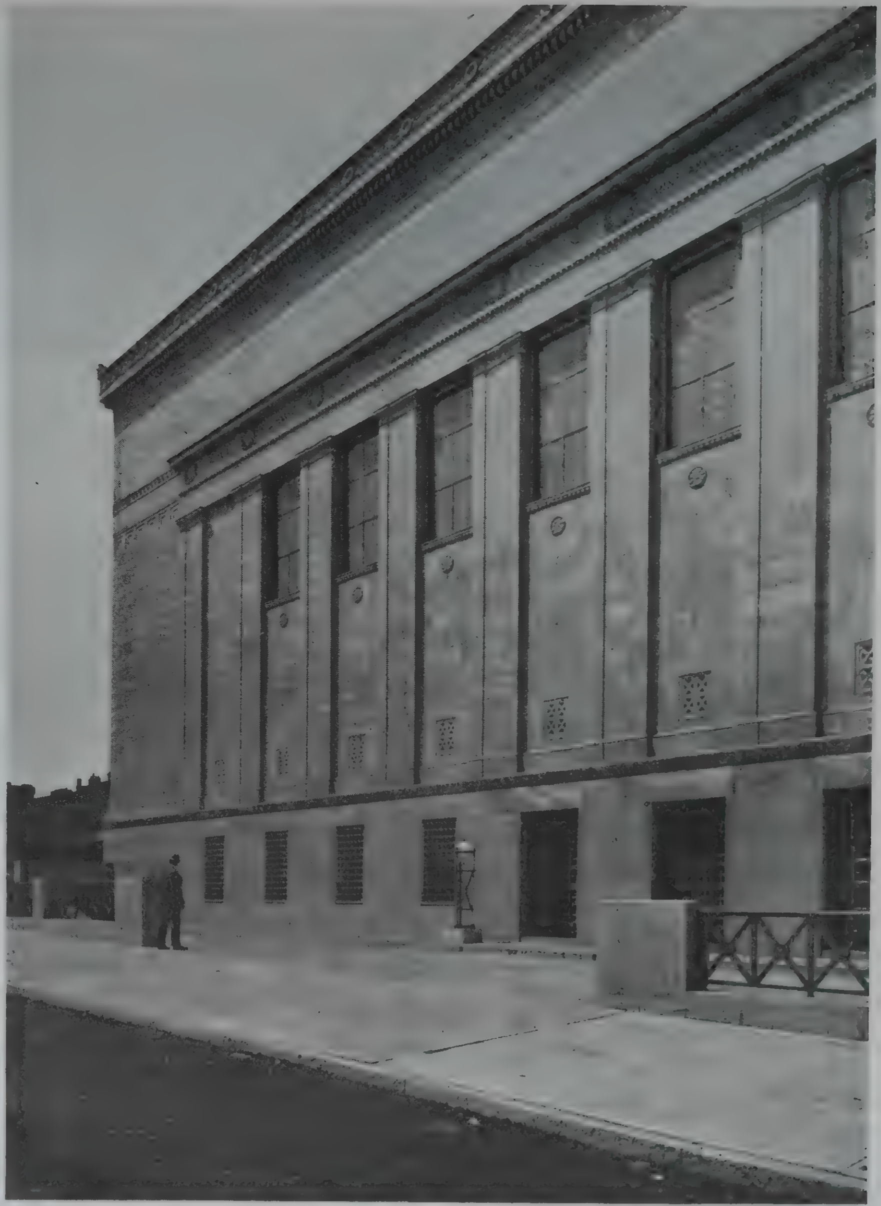


Photo. Tebbs & Knell, Inc.

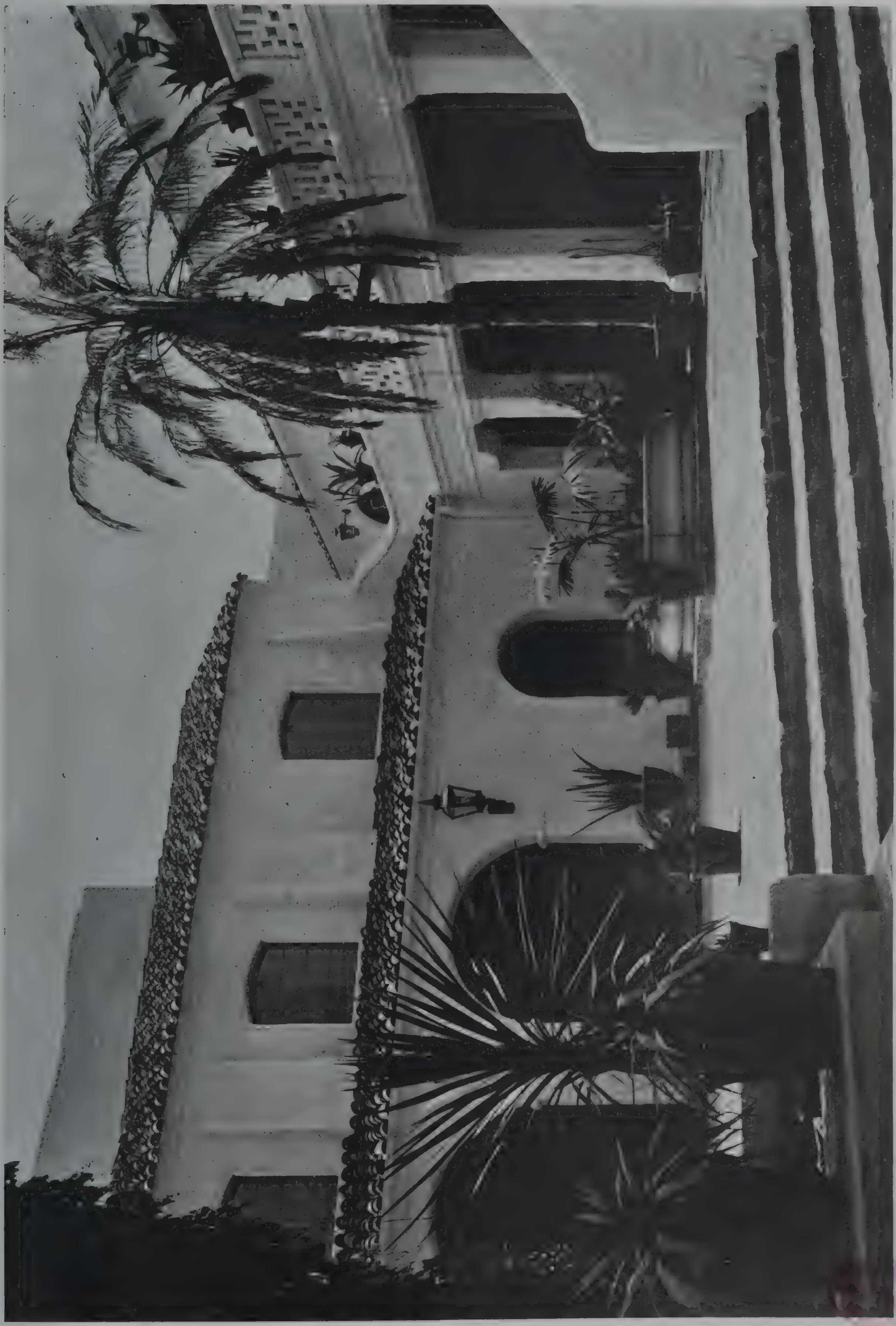
MEMORIAL HALL, TOWARD PLATFORM



Photo, Drix Duryea

VIEW OF A SIDE ELEVATION

MARYLAND WAR MEMORIAL, BALTIMORE
LAWRENCE HALL FOWLER, ARCHITECT



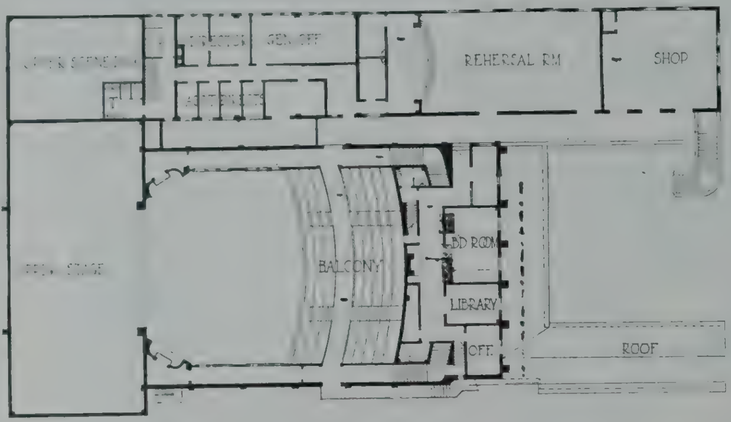
Photos, Margaret Craig

Plans on Back

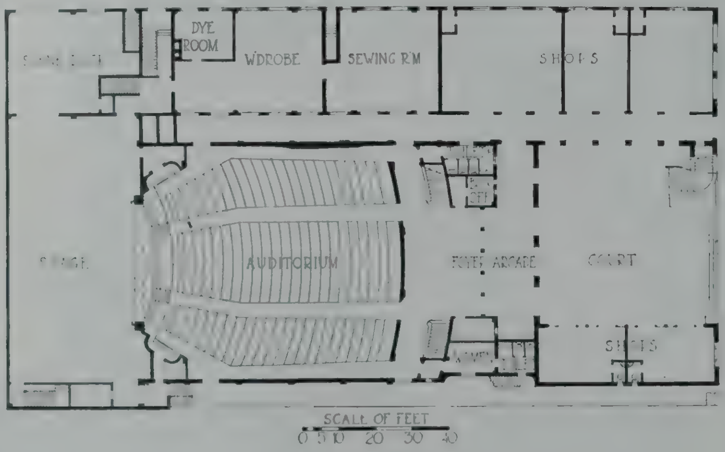
ENTRANCE PATIO

COMMUNITY PLAYHOUSE, PASADENA

ELMER GREY, ARCHITECT



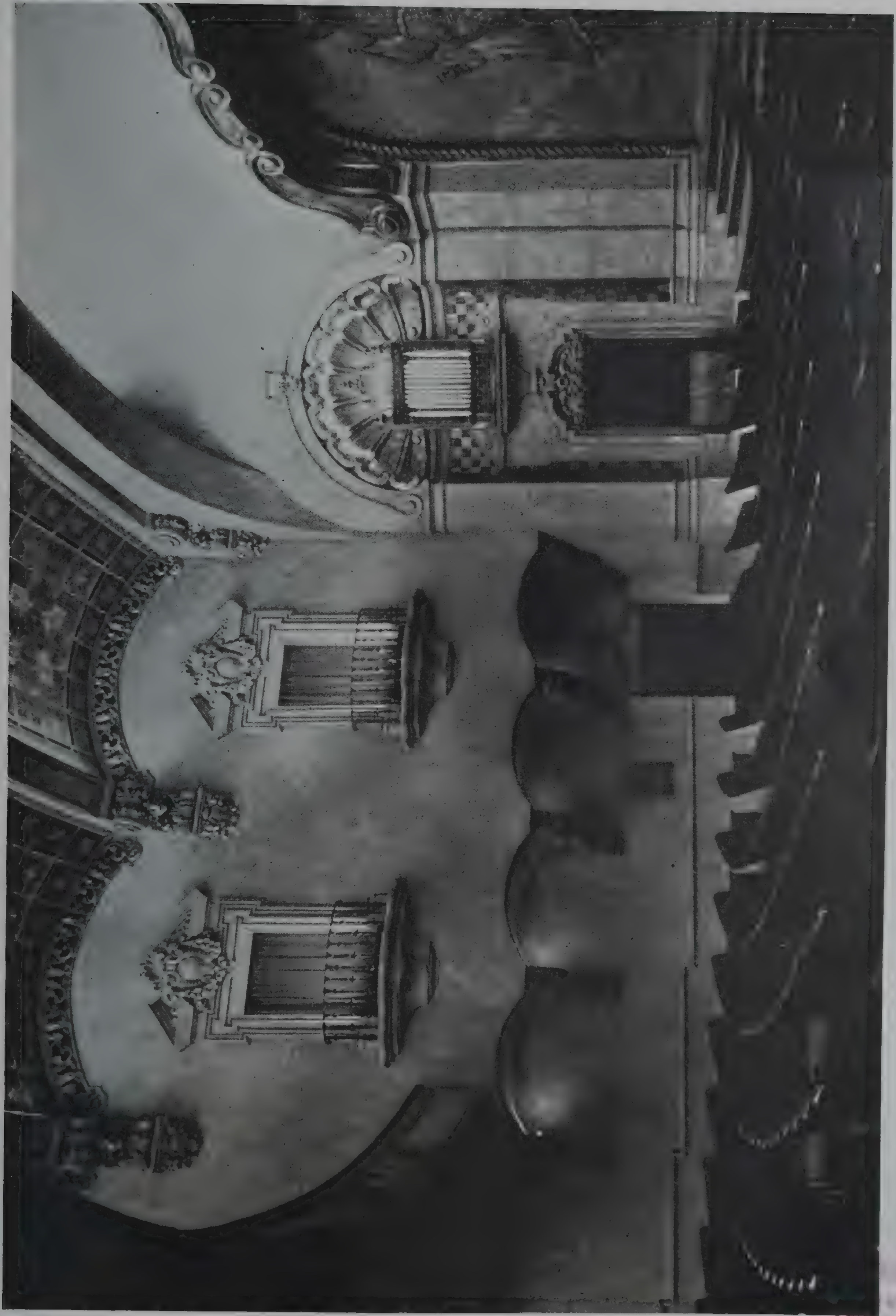
SECOND FLOOR



FIRST FLOOR

COMMUNITY PLAYHOUSE, PASADENA

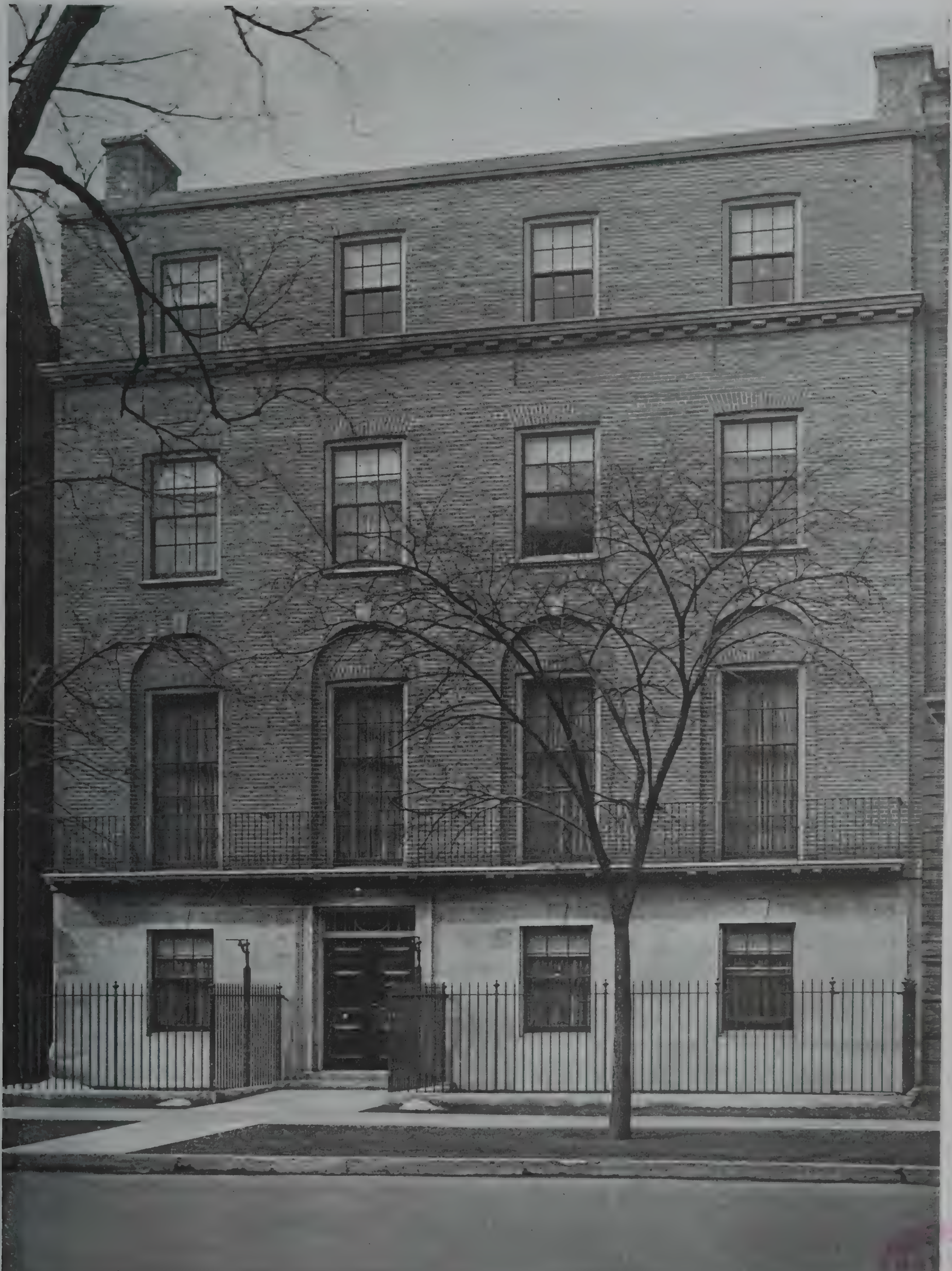
ELMER GREY, ARCHITECT



AUDITORIUM

COMMUNITY PLAYHOUSE, PASADENA

ELMER GREY, ARCHITECT

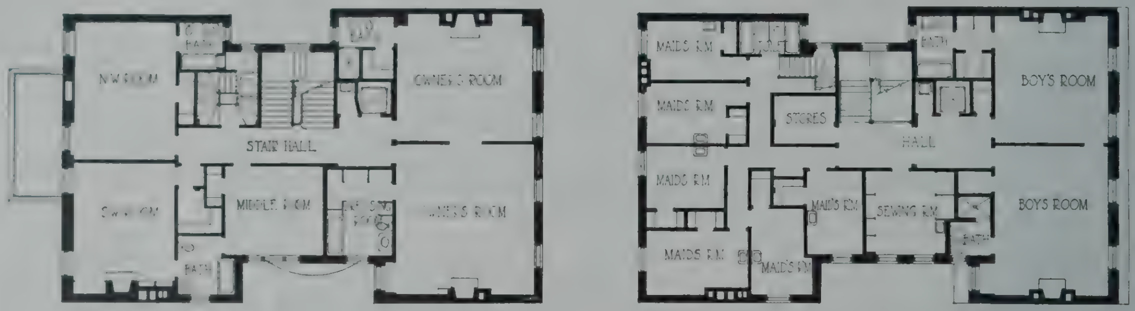


Photos. Trowbridge

Plans on Back

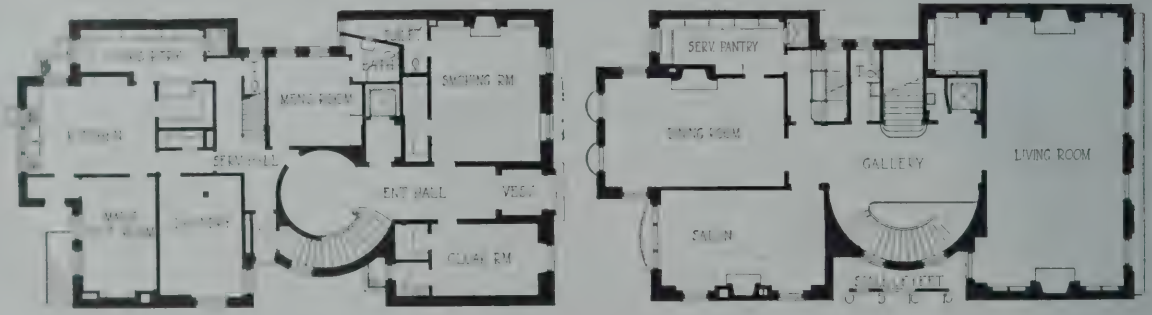
HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT



THIRD FLOOR

FOURTH FLOOR

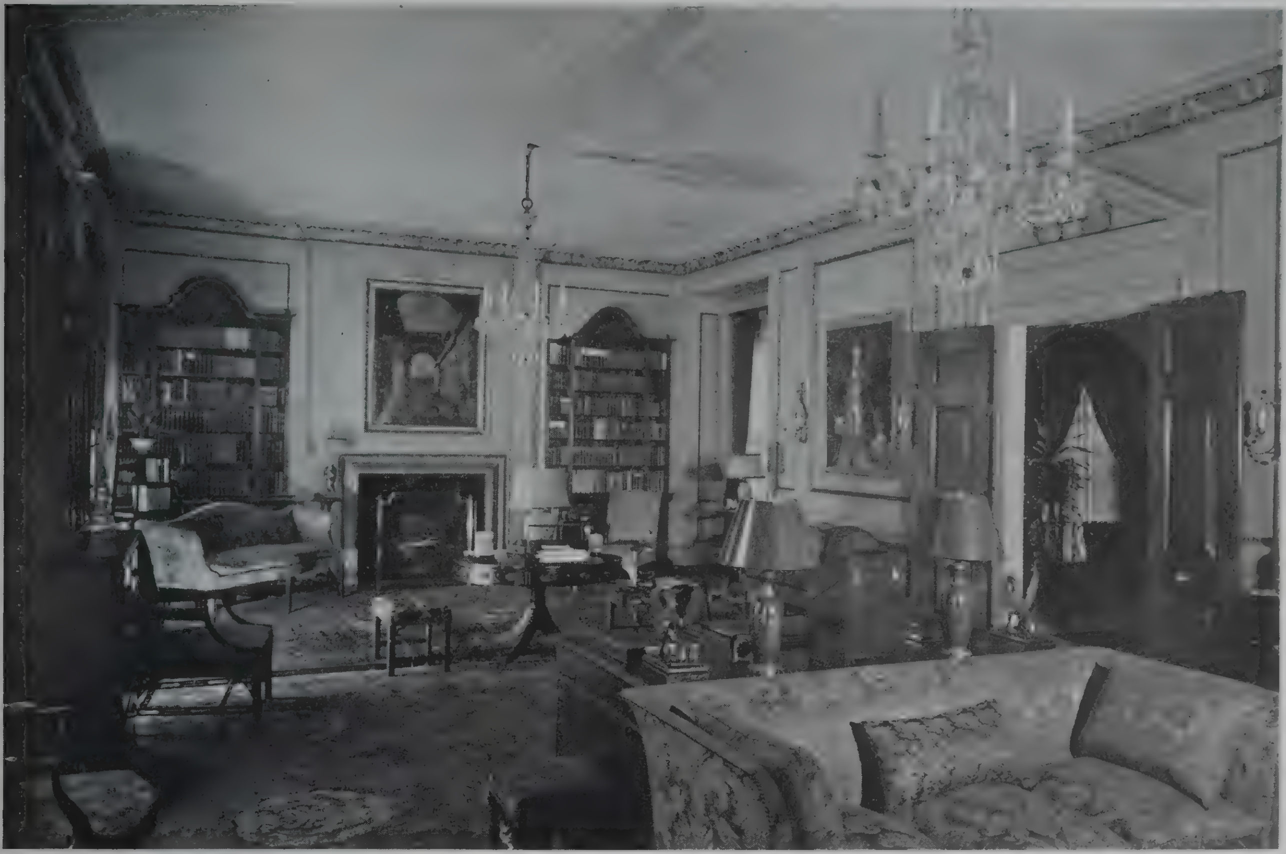


FIRST FLOOR

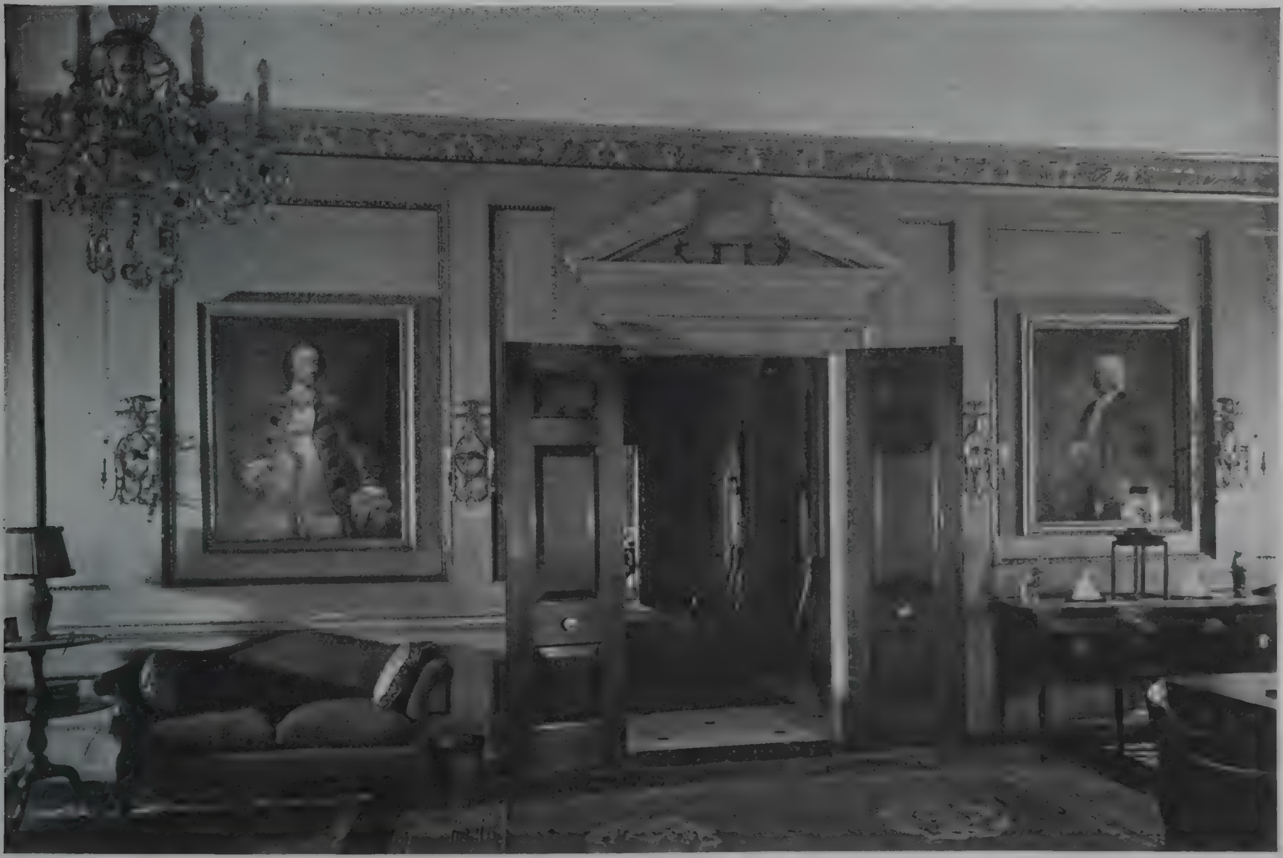
SECOND FLOOR

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT



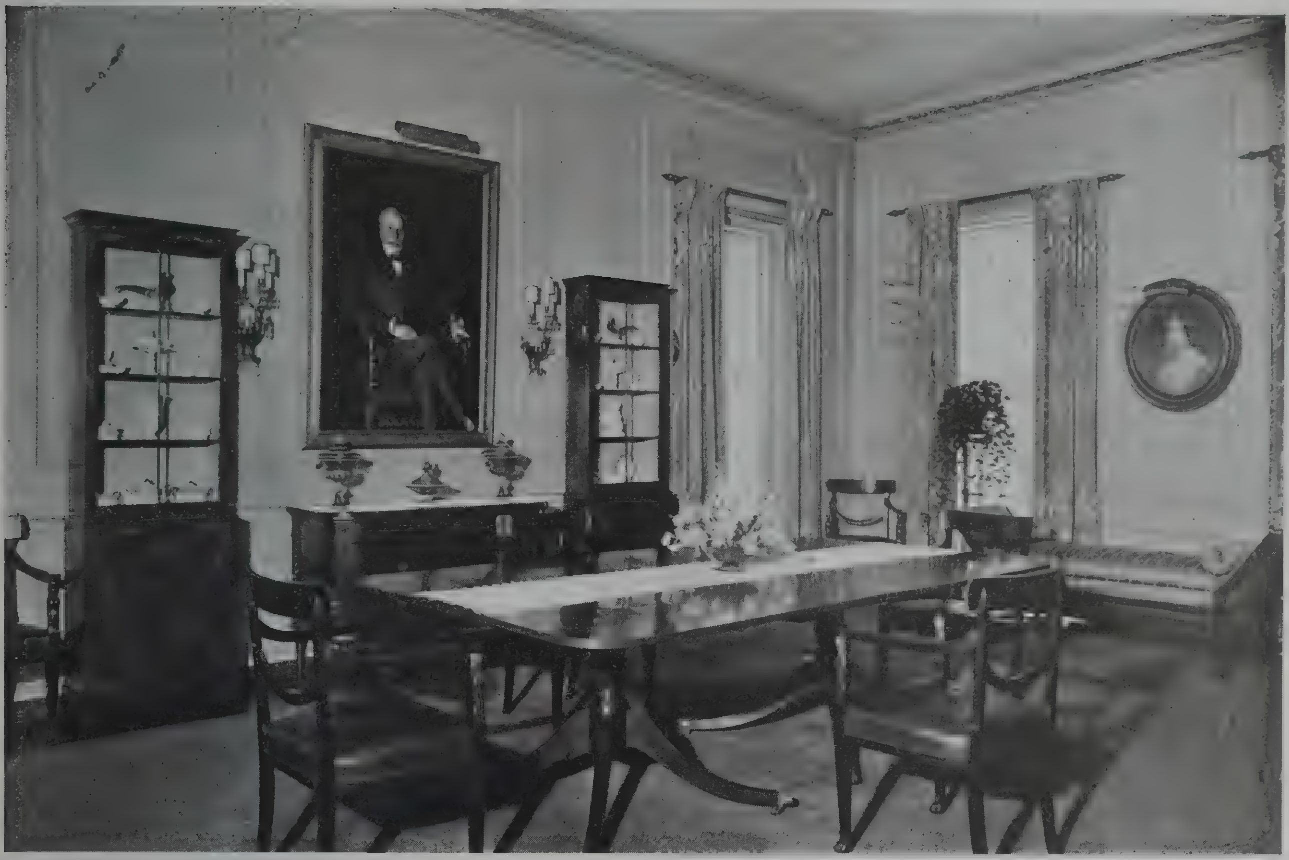
LIVING ROOM

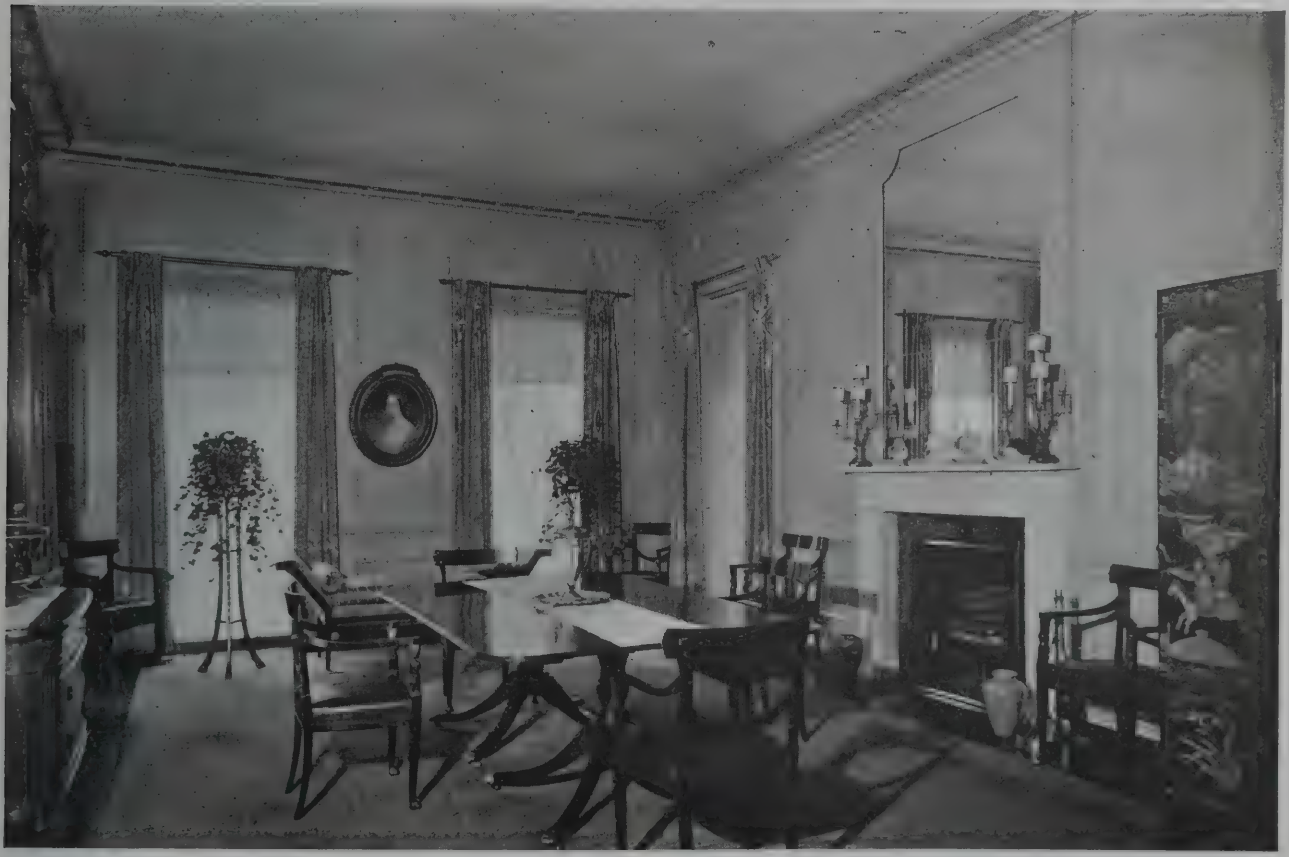


DETAIL, DOOR INTO HALL

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT





TWO VIEWS OF DINING ROOM

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT

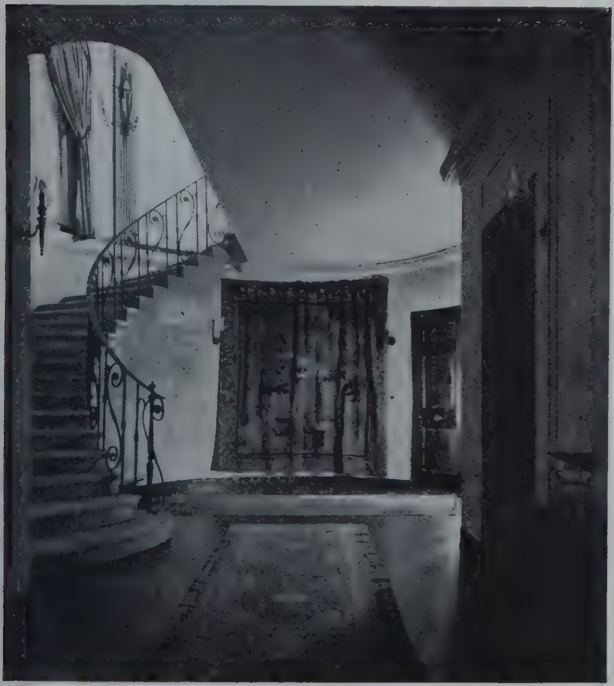
House of John P. Wilson, Esq., Chicago

HOWARD VAN DOREN SHAW, Architect

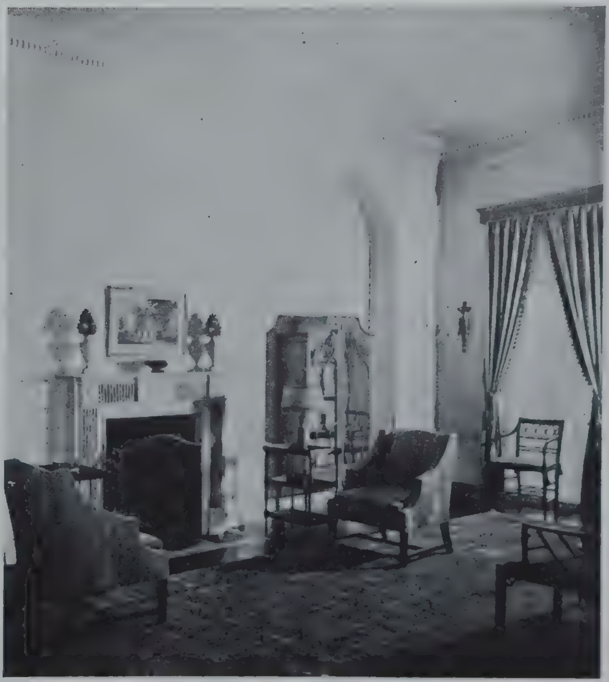
WITH the increasing popularity of large and palatial apartments for city homes, the number of private city houses built each year has dwindled rapidly. In fact an outstanding example of new urban domestic architecture is today so rare that it is a pleasure as well as a privilege to publish so fine an example of modern Georgian architecture as this house recently completed in Chicago.

The simple four-story facade shows a dignified treatment carried out in brick and limestone. The basement story with its hospitable entrance door and well proportioned windows is built of limestone, above which the three remaining stories are constructed of dull red brick. Arches with limestone key blocks provide slight recesses for the tall windows of the main floor. A narrow limestone cornice with modillions breaks the facade above the second story windows, giving the effect of a high parapet or attic to the wall of the fourth floor above. A plain limestone coping finishes the top of the facade. A thin limestone balcony supported on delicate corbels separates the limestone walls of the basement from the brick walls above. A simple wrought iron balustrade further accentuates and ornaments this division between the basement and the upper stories, and a high wrought iron fence at the sidewalk level furnishes another decorative note emphasizing the character of the building.

The plan of Mr. Wilson's house is clearly indicated by the arrangement of windows on the front facade. Entering the front door, a small cloakroom is located at the left, while on the right is a larger room used as a study or office. The entrance hall leads to the center of the house, where a graceful circular stairway with an interesting wrought iron balustrade leads to the main floor. The walls of this entrance hall are laid up in Yorkshire stone, with a black marble base which harmonizes well with the black terrazzo floor. The stairway also is constructed of warm toned Yorkshire stone. In the rear of the basement floor are located the kitchen, servants' dining room, laundry, pantry and storage rooms, which are reached from the street through a narrow passageway. The plan of the first or main floor shows a large living room, extending the entire length of the front of the house. This room, which is of unusually fine proportions, is paneled from floor to ceiling, with an elaborately carved cornice and panel mouldings in typical Georgian style. Furnished almost entirely with rare pieces of antique English furniture of design appropriate to the period of the room, a remarkable air of age and dignity is obtained. A pair of antique crystal chandeliers, interesting old paintings, wall sconces and quaint original bookcases still further add to the Georgian atmosphere of this delightful room. The paneled walls are painted a soft shade of brown and are glazed to produce an antique tone. The carved panel mouldings and cornice are gilded and glazed to further enhance the rich color tones of walls and ceiling. The walnut doors into the center stair hall, the walnut bookcases and the brown toned



Stairway and Entrance Hall

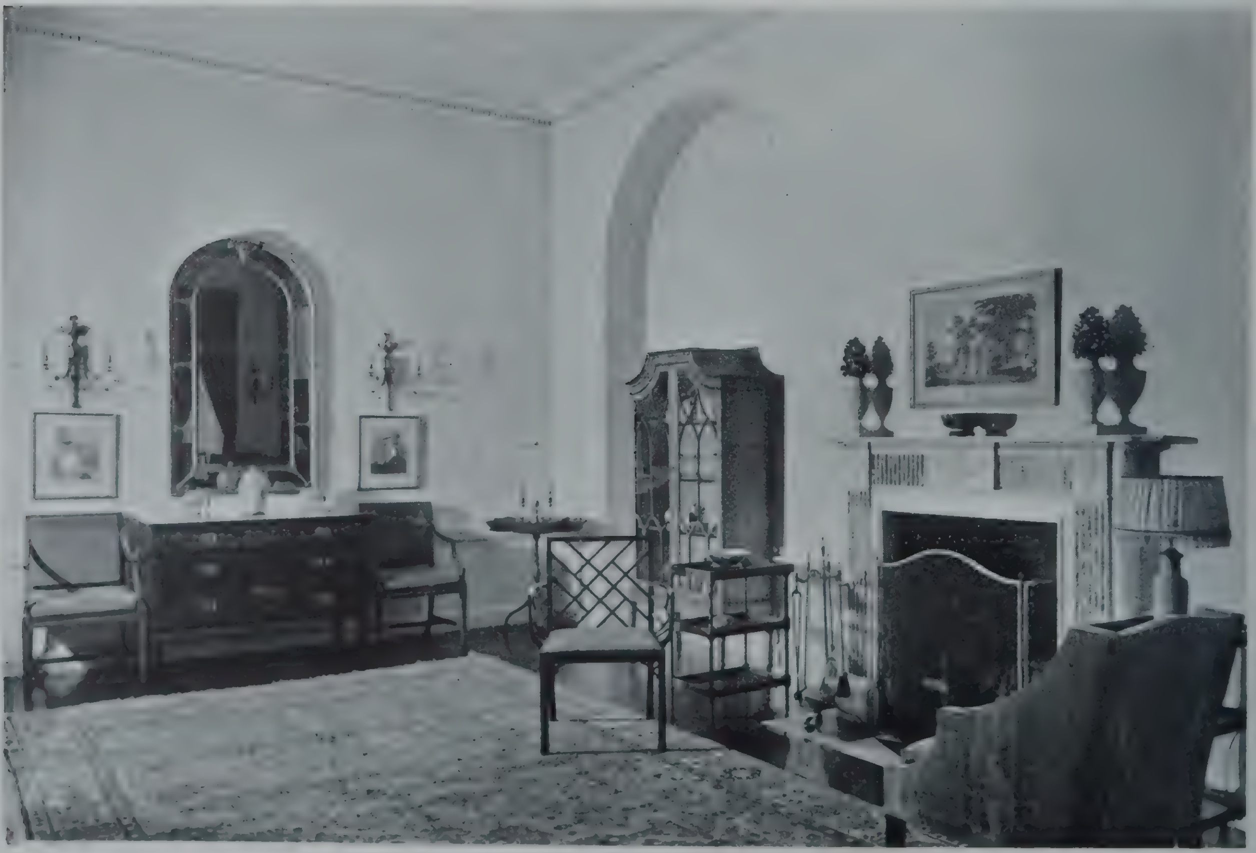


The Yellow and White Salon

mahogany of the furniture make a pleasant contrast to the lighter tones of the walls. The massive bolection moulding of the fireplace is of dull red marble, which color is repeated in some of the lamps and shades, as well as in the antique Chinese rugs. Chinese red appears again in the raw silk hangings of the windows, making a delightful contrast to the brown and old gold tones prevailing throughout the entire room. The furniture coverings vary in color, Chinese green, Empire blue, taupe, and the various colors of old needlework are used. Several of the old pieces of furniture are Chinese Chippendale, while the rest are in varying styles of the Georgian period—Hepplewhite, Sheraton and Adam.

This great living room is entered from a spacious center stair hall with black and white marble floor, walls, pilasters and cornice painted a warm gray, and window hangings of rich green, which provides an attractive approach to the open archway, through which a broad stairway leads to the floors above. Service stairs, store closets and a lavatory are also located adjacent to this center stair hall. At the rear of this floor are a dining room and salon of nearly equal sizes. Both rooms are decorated in a simple adaptation of the Adam style. In the dining room an antique marble mantelpiece and old armchairs, all in the Empire style, are combined successfully with Adam pieces. Various tones of green are used for the color scheme. Against the gray-green walls, which are broken into panels in an interesting manner, hangings are used in which an Empire design in rich yellow appears against a ground of green. The dining room projects a few feet beyond the salon, making it possible to have a window in each side wall as well as at the end of the room. In the salon the walls are painted white in characteristic Adam fashion, against which the vari-colored marble mantelpiece in this same style makes a pleasant contrast. On the dark stained floor a richly colored rug, showing blue and rose against a yellow background, furnishes a delightful color note. Color again relieves the whiteness of the walls in the green and gold painted cabinets set into the deep niches which are recessed within the walls on either side of the fireplace.

The second floor of this unusually well planned and delightfully decorated house is taken up by a suite of two bedrooms and dressing room on the front, and two guest rooms with baths on the rear. On the third floor are additional family bedrooms with baths connecting, in the front, and at the rear, completely shut off from the front of the house, are located six servants' rooms and two baths. To sum up the impression made by a brief survey of this successful example of a modern American city house, designed, decorated and furnished with consummate taste and skill in the finest manner of the Georgian period, it can justly be said that it is one of the most perfect of recent American homes.



The White Walls of the Salon Are Relieved by the Rich Yellow Rug and Hangings

THE BUILDING SITUATION

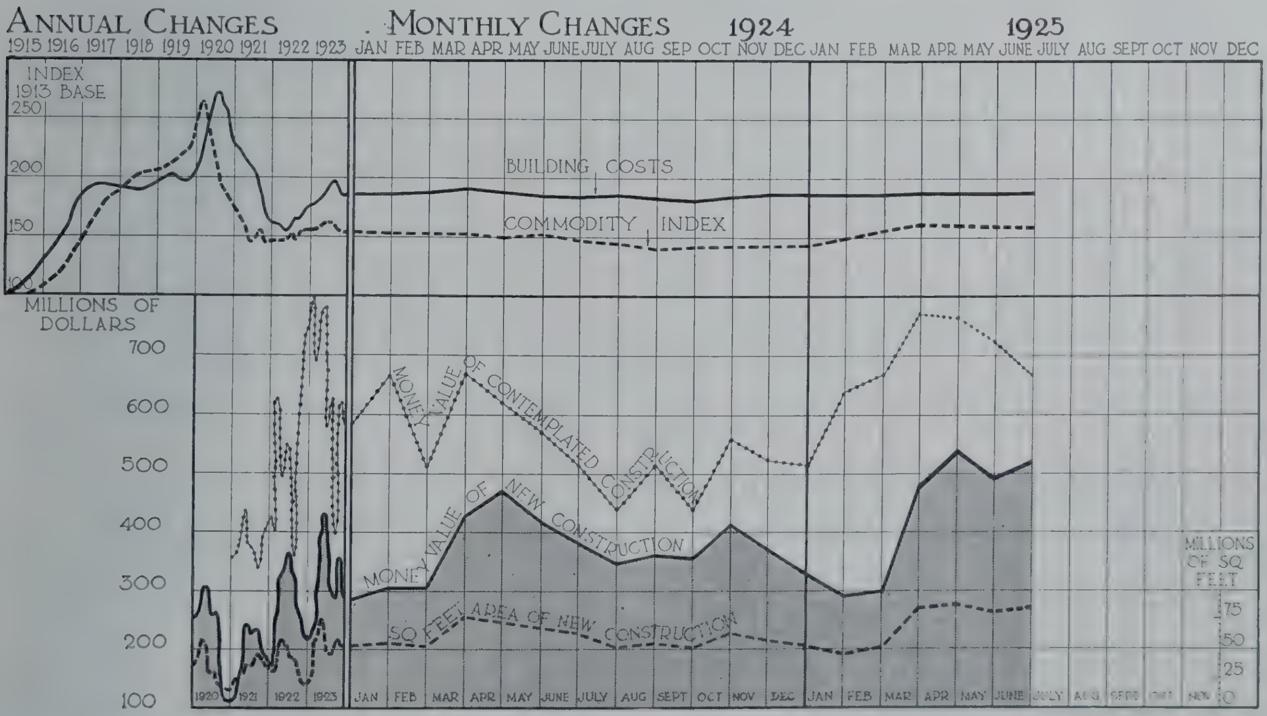
A MONTHLY REVIEW OF COSTS AND CONDITIONS

THE building construction figures for the month of June, as reported by the F. W. Dodge Corporation, indicate an enormous total, approximately 40 per cent higher than for the corresponding month of last year. The contracts awarded during June in territory covering about seven-eighths of the United States total $540,609,600, which is an increase of 9 per cent over May. For the first six months of 1925 the total value of building contracts let is over $2,500,000,000, representing nearly 15 per cent more than during the first six months of the record year 1924. The building industry is today on a more stable basis than it has been for many years.

According to a recent survey issued by the Guaranty Trust Company of New York, some light is thrown on the question of comparative costs by a consideration of the area and value represented by contracts awarded. The average value per square foot of floor space during the first five months of this year and the corresponding period last year, for the different classes of buildings, is thus given:

Classification	1925	1924
Commercial	$5.39	$5.17
Educational	6.51	5.77
Hospitals and Institutions	7.92	6.83
Industrial	6.91	6.78
Military and Naval	5.78	6.60
Public Buildings	7.65	6.85
Religious and Memorial	8.63	7.44
Residential	4.87	4.58
Social and Recreational	8.22	5.62
Average	$5.47	$5.06

It will be noted that the average cost per unit of area is materially higher this year in every group except military and naval buildings, which form only a very small proportion of the total. The average increase in unit cost is about 8 per cent. This increase does not by any means measure the advance in average building costs during the year, but it does provide some basis for the contention that an advance rather than a decline has taken place.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

Settings For Hand Fired Tubular Boilers

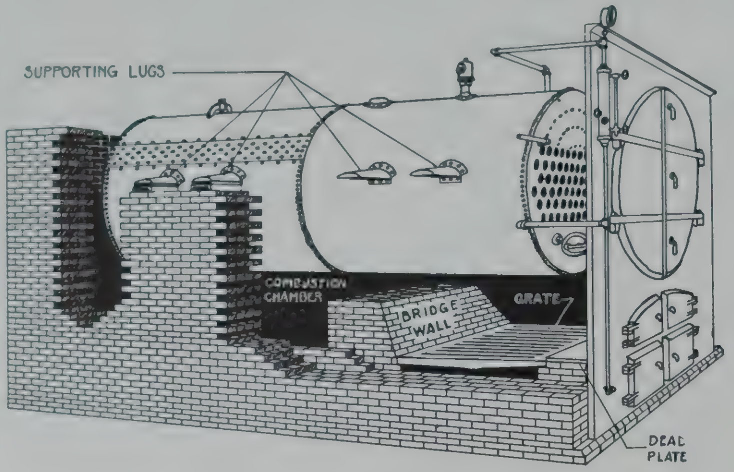


Fig. 12—Lug Support for Horizontal Tubular Boiler

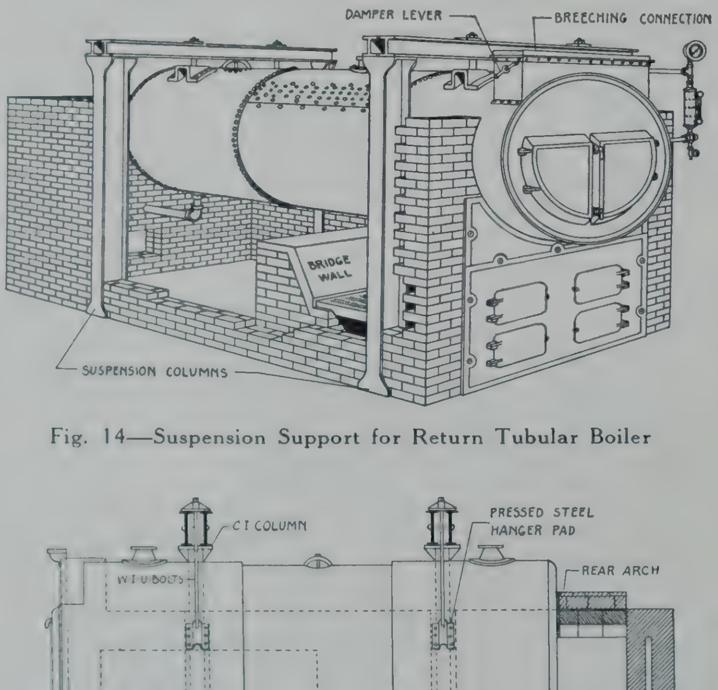


Fig. 14—Suspension Support for Return Tubular Boiler

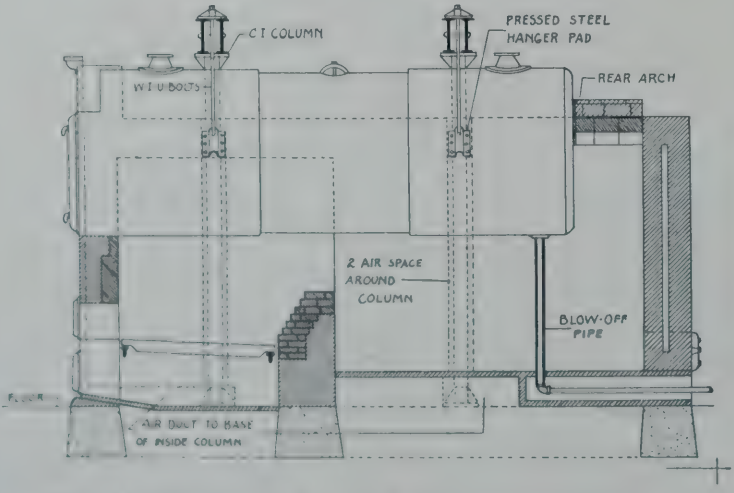


Fig. 15—Vent Ducts Protect Boiler Suspension Columns Against Overheating

The utmost possible precaution must be taken to prevent the columns from buckling when the furnace is stoked with gas, fuel oil or pulverized coal.

THE boiler illustrated at the left is supported by lugs riveted to the shell and resting on brick side walls. Boilers of up to 54 inches in diameter may be supported by two lugs on each side. From 54 to 78 inches they must be supported by the outside suspension type of setting, or at four points by brackets set in pairs.

Fig. 13 shows the method of providing for expansion and contraction in lug-supported horizontal-tubular boilers by anchoring the front lugs in place and resting rear lugs on rolls which permit the free movement of the boiler.

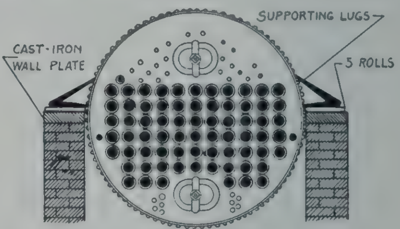


Fig. 13—Expansion Rolls Under Lug Supports

The suspension type of setting for return-tubular boilers (Fig. 14) is the best type of support, because the boiler is left free to expand and contract.

With either type of support a horizontal-tubular boiler is set 1½ inches higher at the front than at the rear, providing pitch to the blowoff outlet at rear and a rise of flues or tubes from the combustion chamber to the smokebox. The blowoff pipe is protected from direct heat by means of a V-wall, pointing toward the firebox but not touching the boiler.

Supporting columns, as shown in Fig. 15, should be encased in three courses of brick, but with a 2- or 3-inch space all around to allow a flow of cooling air. When two or more boilers are set in battery, an air tunnel is provided from outside setting to interior columns, and sometimes tops are connected with special flues. It is bad practice to connect these vents with the breeching from boilers. Under forced draft, there is danger of heat's being driven into the air spaces.

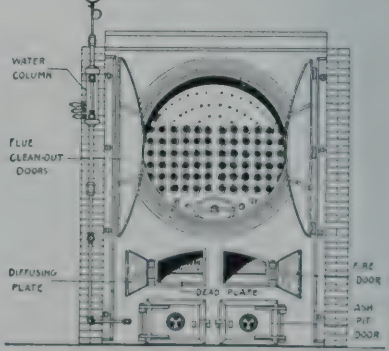


Fig. 16—Cast Iron Boiler Front

This is a typical front for a return-tubular boiler. This iron front has a backing of fire brick.

ENGINEERING DEPARTMENT

Power and Heating Plants

THE GENERATING PLANT; BOILERS

By J. J. COSGROVE

EDITOR'S NOTE—The first part of this series of articles on "Power and Heating Plants" by Mr. Cosgrove, appeared in THE ARCHITECTURAL FORUM for April, 1925.

IT is necessary that a good, substantial foundation be provided to support a boiler and boiler walls. Concrete makes the best foundation, and it is well to have the concrete poured long enough before the delivery of the boiler to allow the foundation to become thoroughly set.

The bearing capacity of the soil must be considered when proportioning the foundation. In soft or swampy ground it might be necessary to drive piles along the line of the walls, or to build a concrete footing a couple of feet thick and over the entire area of the setting. The foundation is made 4 inches wider all around than the brickwork for the boiler setting. A boiler setting for a horizontal tubular boiler is shown in Fig. 17, a sectional view of a boiler setting is shown in Fig. 18, and a half elevation and half cross section in Fig. 19.

Measurements for the various parts of a boiler setting for hand-fired boilers from 36 inches in diameter up to 84 inches in diameter are given in Table II. The reference letters on Figs. 17, 18 and 19 correspond to the letters in the top lines of the table. The height to the bottom of the boiler indicated in Fig. 18, I-J, is for the front end of the boiler. The rear end would be 1½ inches lower. The height of setting given in Table II is the conventional height given by the manufacturers to suit average conditions. As will be seen later, the height of a boiler from the grates depends upon the kind of fuel to be used, and upon the rate of combustion. The walls enclosing a boiler are on an average 12 inches thick, and are made solid. There is no advantage in leaving a space between the outer and inner courses of brick, as it will neither retard heat materially nor prevent the brickwork from cracking. However, hollow setting walls or furnace wall flues are sometimes provided to heat the air used for combustion, and at the same time keep down the temperature of the walls.

At the rear of the boiler setting is the rear arch, which roofs the space between the back end of the boiler and the brickwork and deflects the flames and hot gases into the boiler tubes. The under side of this arch is just above the top level of the uppermost row of tubes. The back arch of the boiler should be just high enough to clear the top row of tubes. It must be built low enough so that the water level inside the boiler can never fall below that of the arch, which if placed too high will leave a section of tube sheet bare when the water happens to be low in the boiler. The arch must not touch the boiler or the boiler cannot expand without pushing the arch out of true. A lap joint is made to cover the opening to cut down the air leakage. At the sides, just above the middle line of the boiler, the brickwork is corbeled out as shown at A, to close the gap between wall and boiler. From above

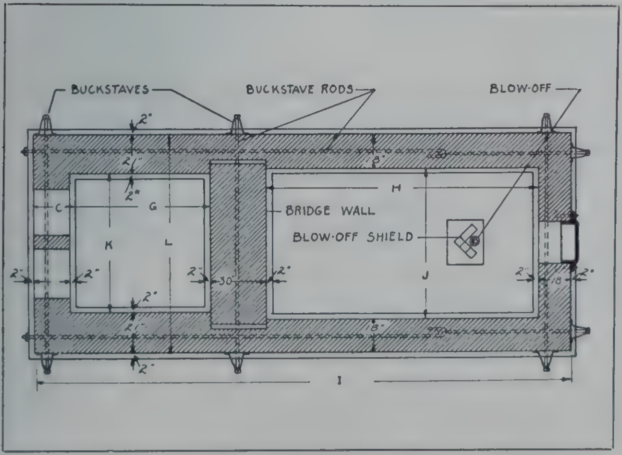


Fig. 17—Plan of Setting for Horizontal Tubular Boiler

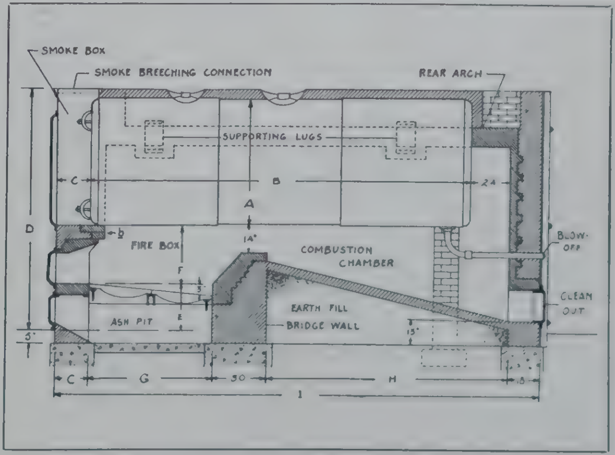


Fig. 18—Longitudinal Section Through Setting for Horizontal Tubular Boiler

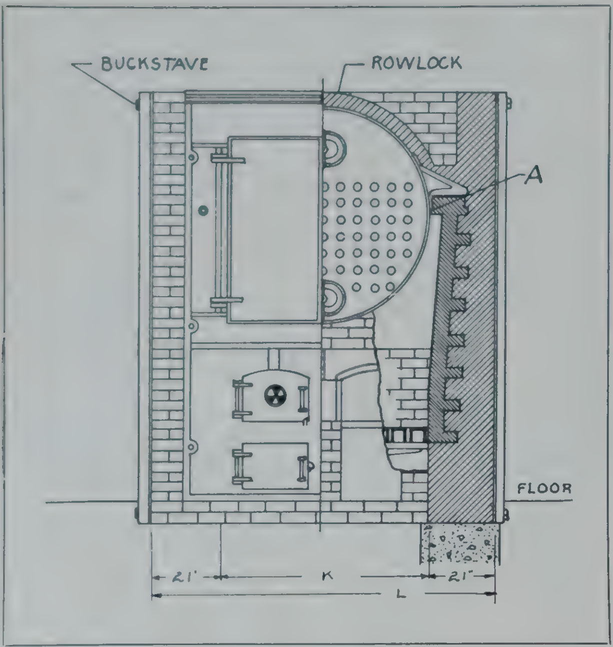


Fig. 19—Half Elevation and Half Cross Section of Typical Boiler Setting

this a single or double rowlock arch is sprung to enclose the boiler at the top, and to prevent leakage of air into the boiler setting or the escape of flames and gas from within. To more effectively insulate the top of the boiler and prevent air or gas leaks, plaster the arch with asbestos cement.

The bridge wall, which partly separates the furnace from the combustion chamber, is built of fire brick and is not bonded to the side walls. It is let into grooves or pockets in the side walls for support, but with sufficient room for the bridge wall to expand without crushing out the side walls or cracking the brickwork. The bridge wall is made independent of the side walls, so it can be torn out and renewed at any time without tearing out part of the side walls. The bridge wall has many functions to perform in the operation of a boiler. It limits the furnace, provides a rest for the grates, and by deflecting the flames, hot gases and air upward it helps to mix and commingle them more thoroughly when passing through the throat or space between the top of the wall and the boiler.

All the walls inside the boiler setting, the bridge wall, inside lining of furnace, combustion chamber and smokebox, are built of fire brick. The firebox lining of fire brick is made 9 inches thick, or two rows of brick, for from 18 to 24 inches above the grates. These brick are laid in stretcher courses with headers every fifth course, so that one row or 4½ inches of brickwork can be removed when burned out, and there will still be a fire brick backing. New brick can easily be laid up against the inner or second course of fire brick. At the rear of the boiler a V-shaped pier of fire brick is built with the point of the V toward the front. Back of this pier, and protected by it from the direct blast effect of the flames and gases, is the blowoff pipe.

The front brickwork of the boiler setting is pierced with so many openings that the masonry becomes a series of arches and inverted arches. Cast iron door linings, similar to those suggested in Fig. 20, are put in the ashpit openings and built in with brick. At the height called for in the setting, a dead plate (Fig. 21) is laid across the front wall. This plate has a lip to support the front end of the grate bars. A cast iron lining for the fire doors comes next, over which is sprung an arch of fire brick. Above this arch the wall is corbeled in, as shown at B in Fig. 18, so it will project several inches along the shell of the boiler. An inverted arch is then built, as shown in Fig. 22, and an arch sprung on top of that, thus making a complete circle which forms a smokebox at the front end of the boiler and separates the smokebox from the furnace or firebox. An opening is left at the top of the arch or circle, and this is covered with a stack plate similar to that in Fig. 23, to support the breeching. Inspection will show two grooves, one at each end of the collar upstanding on the stack plate. They are to receive the damper rod, the damper being located at this point in the breeching. Before starting the brickwork, the water column and blowoff pipes are made up in place. An air space is left around those pipes where they pass through the brickwork; then, when the mason work is completed, the air spaces are tightly packed with asbestos, and then pointed with mortar to prevent air leaks. The water column is set so that the lowest gauge cock is 3 inches above the top row of tubes at the front end.

Firebrick. There is no doubt that as many setting failures result from poor workmanship as from use of poor materials. It is advisable, therefore, in setting boilers to have it done by masons who have specialized on that class of work. There are two kinds of brick used in boiler settings,—ordinary hard-burned red brick, and fire brick. The red brick are laid up in lime-cement mortar composed of one volume of Portland cement, three volumes of unslacked lime and 16 volumes of clean, sharp sand. Not less than 2½ bushels of lime are used in laying up 1,000 brick. Each brick is thoroughly embedded, and all joints are filled with mortar to completely fill all crevices through which air might

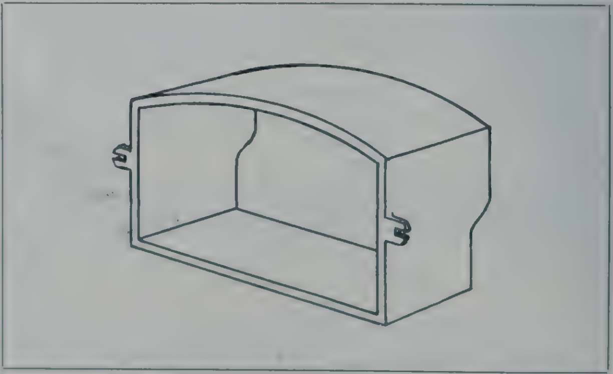


Fig. 20—Ashpit Door Lining

TABLE II
Dimensions and Brick For Horizontal Tubular Boiler Systems

HORSE POWER	15	20	25	30	35	40	45	50	60	70	75
A—Diameter of Boiler	36	36	36	44	44	44	48	48	54	54	60
B—Length of Boiler	8	10	12	10	12	14	12	14	14	16	14
C—Front Wall	13	13	13	17	17	17	17	17	18	18	18
D—Floor to Stack Plate	7′ 2½″	7′ 2½″	7′ 2½″	8′ 2¾″	8′ 2¾″	8′ 2¾″	8′ 11½″	8′ 11½″	9′ 9¾″	9′ 9¾″	10′ 2″
E—Floor to Dead Plate	24	24	24	24	24	24	24	24	24	24	24
F—Grates to Boiler	28	28	28	28	28	28	28	28	36	36	36
G—Length of Ashpit	36	36	42	42	42	48	48	48	48	54	54
H—Combustion Chamber	4′ 6″	6′ 6″	8′ 0″	6′ 0″	8′ 0″	9′ 6″	7′ 6″	9′ 6″	9′ 6″	11′ 6″	9′ 0″
I—Length Over All	12′ 7″	14′ 7″	16′ 7″	14′ 11″	16′ 11″	18′ 11″	16′ 11″	18′ 11″	19′ 0	21′ 0″	19′ 0″
J—Width Comb. Chamber	42	42	42	50	50	50	54	54	60	60	66
K—Width of Furnace	36	36	36	44	44	44	48	48	54	54	60
L—Width Over All	6′ 6″	6′ 6″	6′ 6″	7′ 2″	7′ 2″	7′ 2″	7′ 6″	7′ 6″	8′ 0″	8′ 0″	8′ 6″
No. of Fire Brick, Single	725	800	960	1000	1100	1200	1284	1500	1800	2080	1940
No. of Red Brick, Single	6000	6800	7600	7300	8760	10200	9300	10800	11200	12800	12200
No. of Fire Brick for Battery	1450	1600	1920	2000	2200	2400	2568	3000	3600	4160	3880
No. of Red Brick for Battery	8200	11500	12800	12100	14680	17200	15375	18000	18400	21200	20400

HORSE POWER	80	90	100	115	125	150	175	175	200	200	225
A—Diameter of Boiler	60	60	66	66	72	72	72	78	78	84	84
B—Length of Boiler	16	18	16	18	16	18	20	18	20	18	20
C—Front Wall	18	18	18	18	18	18	18	18	18	18	18
D—Floor to Stack Plate	10′ 2″	10′ 2″	10′ 8″	10′ 8″	11′ 2″	11′ 2″	11′ 2″	11′ 7″	11′ 7″	12′ 1″	12′ 1″
E—Floor to Dead Plate	24	24	24	24	24	24	24	24	24	24	24
F—Grates to Boiler	36	36	36	36	36	36	36	36	36	36	36
G—Length of Ashpit	54	60	60	66	66	72	78	72	78	72	78
H—Combustion Chamber	11′ 0″	12′ 6″	10′ 6″	12′ 0″	10′ 0″	11′ 6″	13′ 0″	11′ 6″	13′ 0″	11′ 6″	13′ 0″
I—Length Over All	21′ 0″	23′ 0″	21′ 0″	23′ 0″	21′ 0″	23′ 0″	25′ 0″	23′ 0″	25′ 0″	23′ 0″	25′ 0″
J—Width Comb. Chamber	66	66	72	72	78	78	78	84	84	90	90
K—Width of Furnace	60	60	66	66	72	72	72	78	78	84	84
L—Width Over All	8′ 6″	8′ 6″	9′ 0″	9′ 0″	9′ 6″	9′ 6″	9′ 6″	10′ 0″	10′ 0″	10′ 6″	10′ 6″
No. of Fire Brick, Single	2230	2435	2350	2540	2650	2980	3300	3020	3360	3400	3780
No. of Red Brick, Single	13000	14400	13800	15000	14800	15600	16700	16400	18500	18000	20000
No. of Fire Brick for Battery	4460	4870	4700	5080	5300	5960	6600	6040	6720	6800	7560
No. of Red Brick for Battery	21600	23970	22700	24687	24700	25900	27600	27235	30950	30200	33700

penetrate. Where red brick and fire brick are used in the same wall, they are carried up together and bonded at every sixth course, excepting in the furnace, as was previously pointed out, where every fifth course is a header course. Under no consideration is fire clay to be mixed with the cement mortar for laying red brick.

Fire brick are not laid in mortar; they are laid in fire clay, and the fire clay is not buttered on to bed the brick in, as is the case with mortar and common brick. Fire brick must be dry and protected from moisture until used. The fire clay for laying fire brick is mixed to the consistency of a batter. Each brick is dipped into this thin fire clay wash or slip on the one side and the two edges which will give contact with the others in the wall; it is then rubbed and shoved into place and tapped with a wooden mallet until it touches the brick next

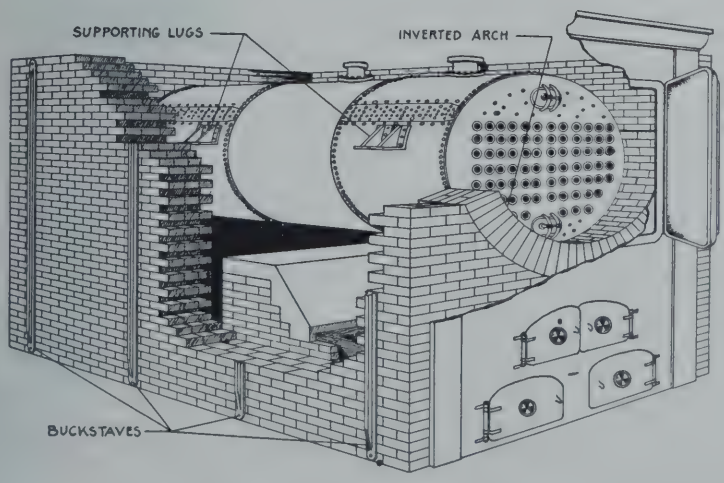


Fig. 22—Inverted Arch at Boiler Front

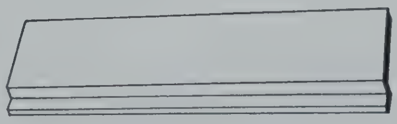


Fig. 21—Dead Plate

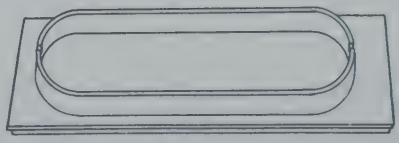


Fig. 23—Stock Plate for Breeching Support

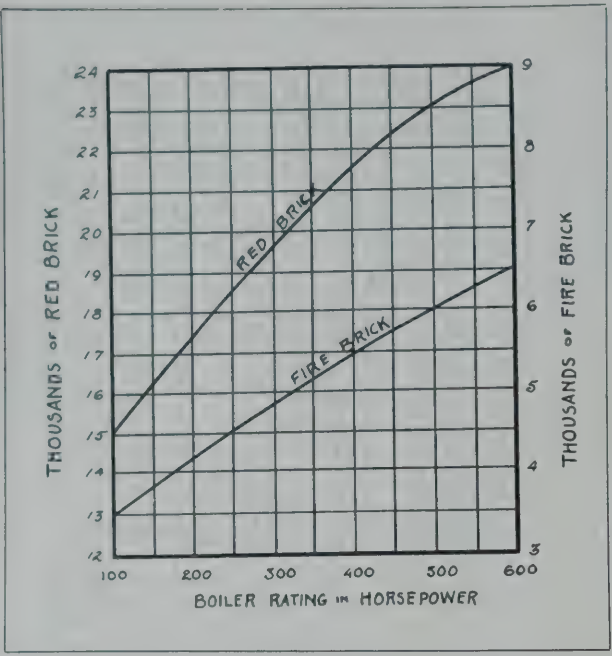


Fig. 24—Brick Required for Water Tube Boiler Settings

below it. Fire clay is not a cement, and it has little or no holding power. Its action is that of a filler rather than a binder, and it is too thick to use when it can be handled with a trowel. It is well to use with fire brick a fire clay furnished by the manufacturer of the brick, having the same qualities.

All parts of a boiler setting in contact with flames or hot gases must be faced with or built of fire brick or some equally refractory material, capable of withstanding the high temperatures they will be subjected to. The brickwork of the ashpit in hand-fired boilers may be of red brick, but in stoker-fired boilers the ashpit lining must be of fire brick.

Furnace temperatures in power boilers will range from 2,800 to 3,200° Fahr., and many refractory materials used for furnace linings melt under or at those temperatures. However, in practice, a fire brick is never heated to the temperature of the furnace. That is, the temperature of the brick mass as a whole is far below the furnace temperature, and only about 10 per cent of its cross section nearest the fire even approaches the furnace temperature. According to the United States Bureau of Standards, the melting points of fire bricks are thus: The most common fire brick, or those made of clay, of which the main ingredient is kaolin, will melt at a temperature ranging from 2,831 to 3,137° Fahr.; bauxite brick, at from 2,949 to 3,245°; silica brick, at from 3,092 to 3,101°; chromite brick, at 3,722°, and magnesia brick at 4,929°.

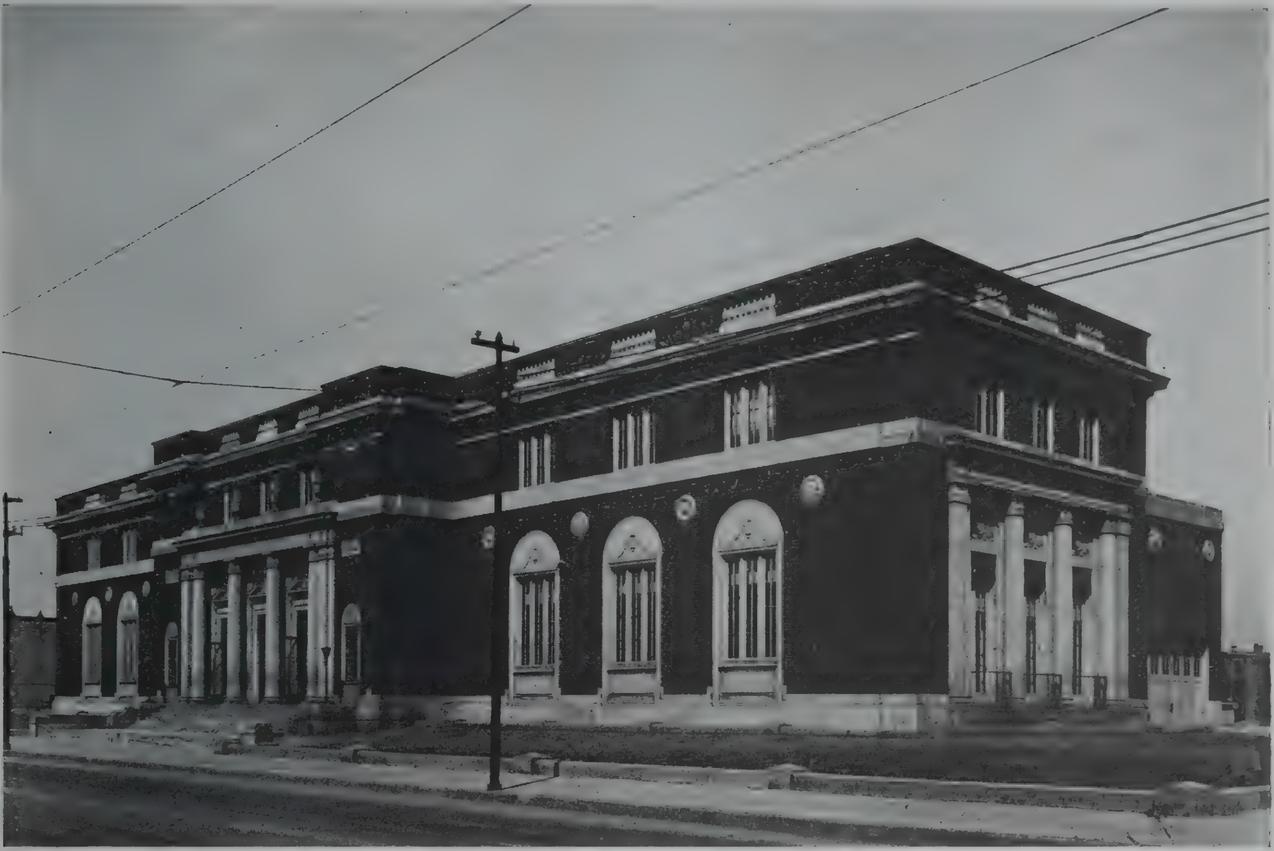
While fire brick or bauxite, silica, chrome magnesia or dolomite have melting points higher than fireclay, they have not proved satisfactory in boiler practice. They do not withstand sudden heating, cooling, pressure and action of the gases and ash. Under sudden changes of temperature they spall and break off in large pieces. The best fire brick for boiler settings are made of fire clay, and the best fire brick are made from the fire clays of Pennsylvania; south and west of Pennsylvania the fire clay becomes poorer as the distance increases, some of the southern fire clays containing a considerable percentage of iron oxide, which is objectionable.

The plasticity of fire brick is more important than the melting temperature from a boiler-setting standpoint. Plasticity means the tendency of a fire brick to become plastic and flow at a temperature lower than the melting point, so it will become deformed under a given load. Under a unit stress of 100 pounds per square inch, the plastic point must be 2,400° Fahr. or higher to be used at all, and 2,800° Fahr. to give satisfactory service. In mechanically-stoked furnaces, the lining can be made stronger or more durable by using special blocks instead of the standard fire brick. The approximate number of red brick, also of fire brick, required for a Heine standard water-tube boiler can be determined by means of the chart, Fig. 24.

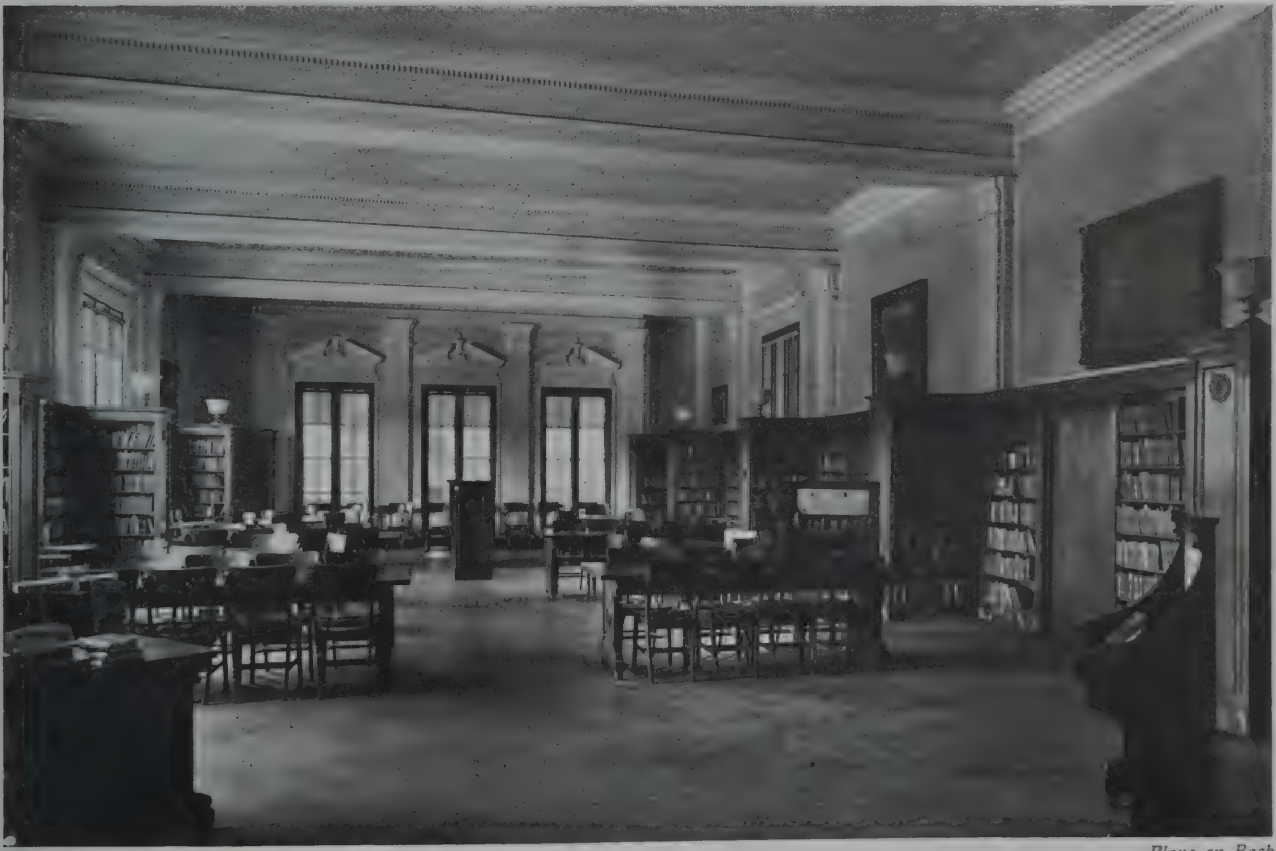
If fire clay is not of the best quality it will melt and run long before the brick softens. Common sand, salt and lime hasten fusion and cement the brick throughout, but at high temperatures this fusion destroys the brick prematurely. The addition of only 5 per cent of Portland Cement, asbestos or salt will lower the fusion point of the clay almost 400° Fahr. Fire sand, which is a finely ground calcined fire clay, or powdered fire brick, can be added to the mortar. This fire sand, having already been fired, has reached its full shrinkage, and helps to hold the brick arch in place, even when the plastic fire clay shrinks, thereby tending to loosen the brick. There are several commercial cements which withstand temperatures at as high as 3,100° Fahr. which are suitable for use with high grade fire brick, such as are used in this work.

Putting the Boiler in Service. When the setting is completed, the boiler is filled with water and the manhole at the top of the boiler left open. A strong solution of soda ash (50 to 60 pounds for a 150-horse-power boiler) is added to the water to cut the oil and grease. If the boiler is to stand idle for some time, the water is drained out, and the lower and upper manholes are left open, so there will be a circulation of air through the inside. If that is not done the boiler will sweat and corrode, and be in worse condition than if it had been operated continuously.

The best way to dry out a boiler setting is to block open the boiler damper and the ashpit doors as soon as the brickwork is completed, and in this way maintain a free circulation of air through the setting. If possible this preliminary drying should be continued for several days before any fire is placed in the furnace. When ready for the drying-out fire, a light fire is started with wood, and gradually built up as the walls become warm. After the walls have become thoroughly heated, coal is fired, and the boiler is then put into active service.



FRONT ELEVATION



Plans on Back

MAIN READING ROOM

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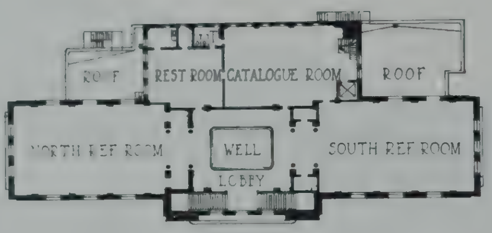
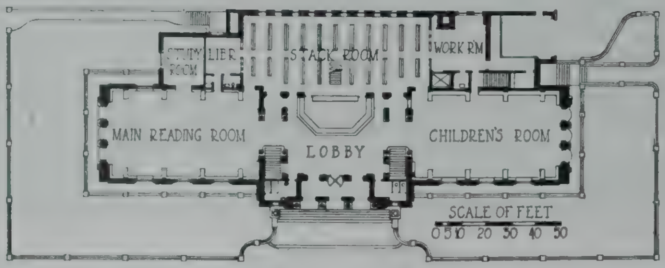
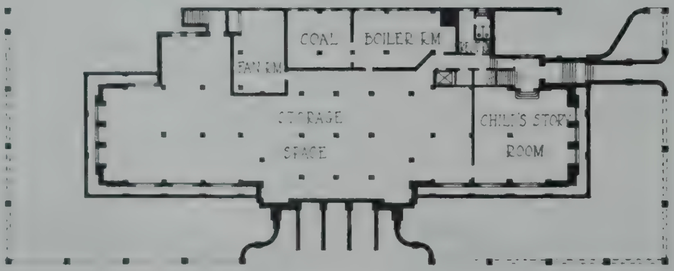


SECOND FLOOR



MAIN FLOOR



BASEMENT

PLANS, BUILDING FOR BRANCH OF THE CHICAGO PUBLIC LIBRARY

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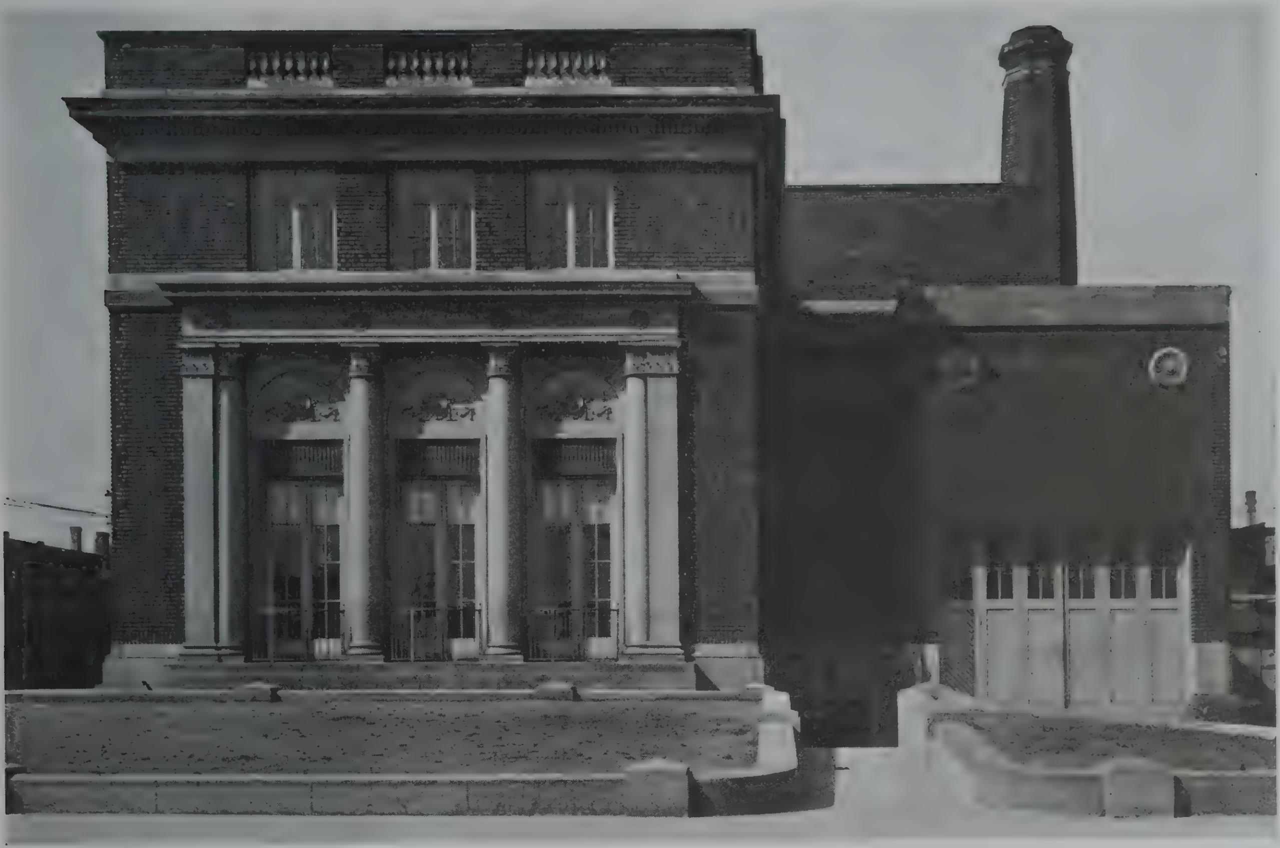
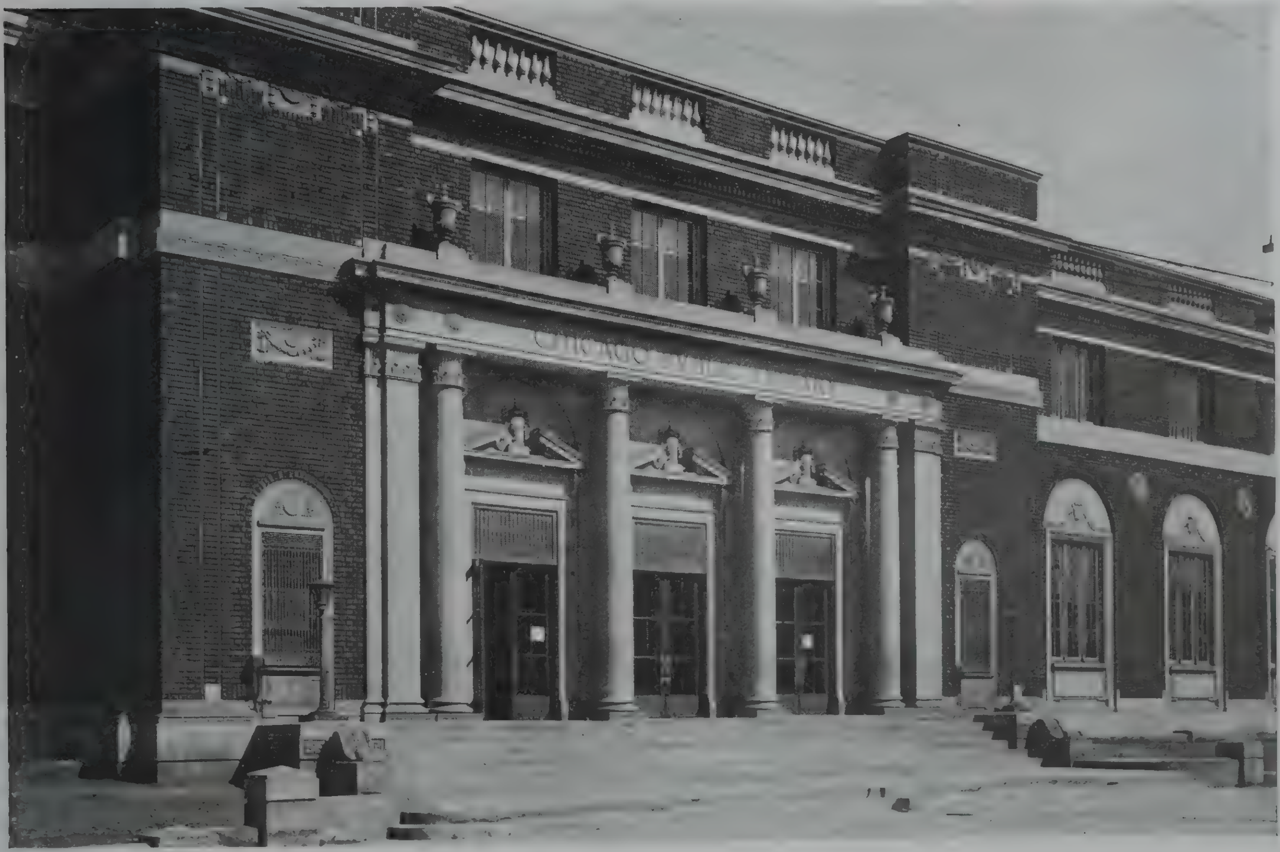


DETAIL, END ELEVATION



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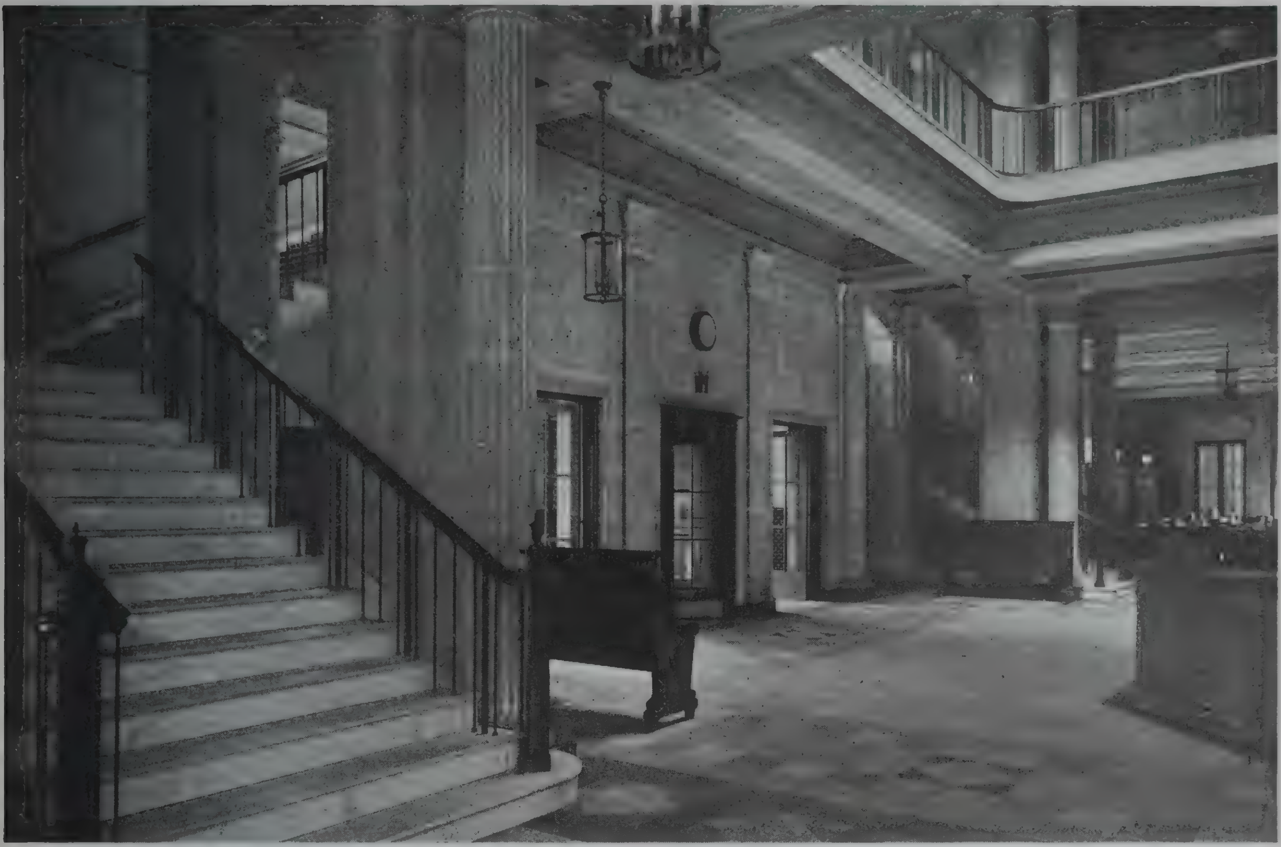
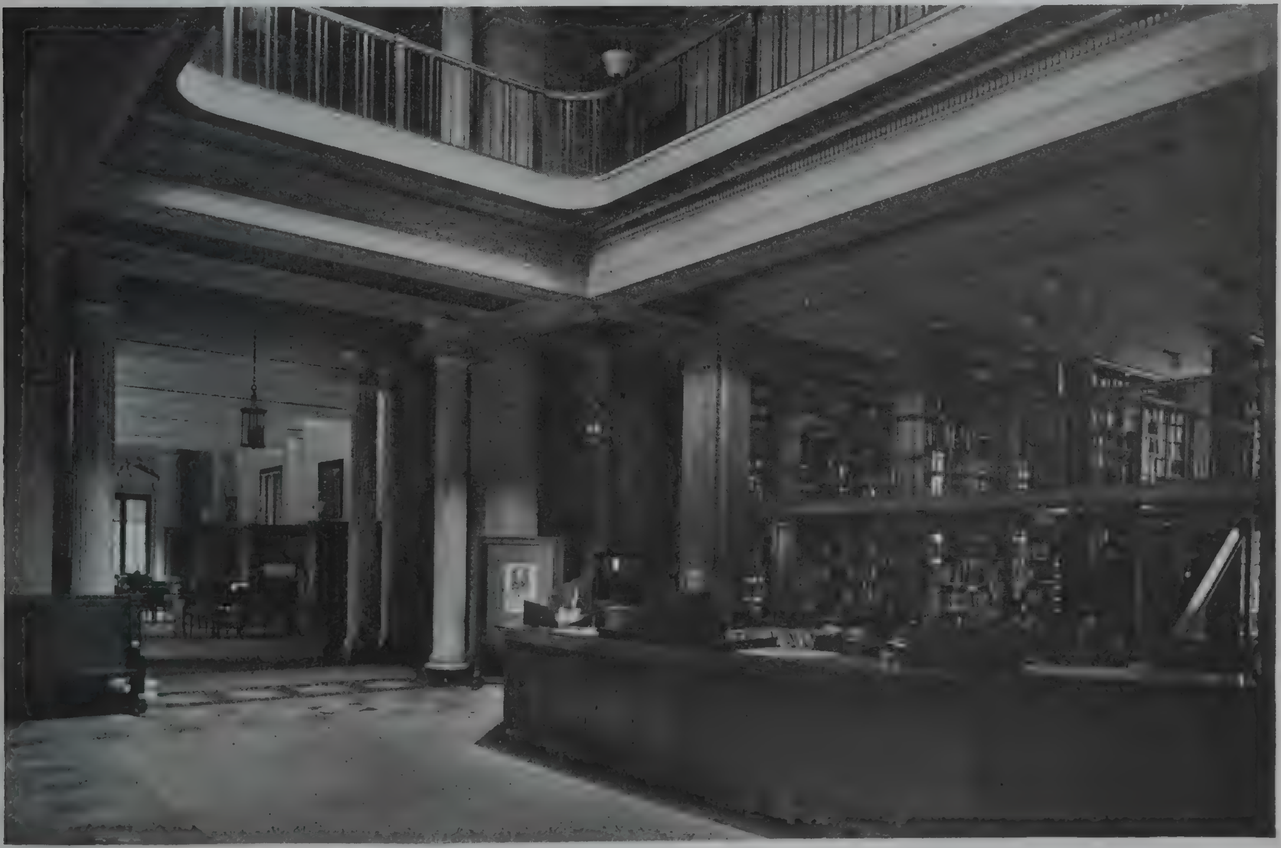


LOBBY, STAIRS AND ENTRANCE DOORS



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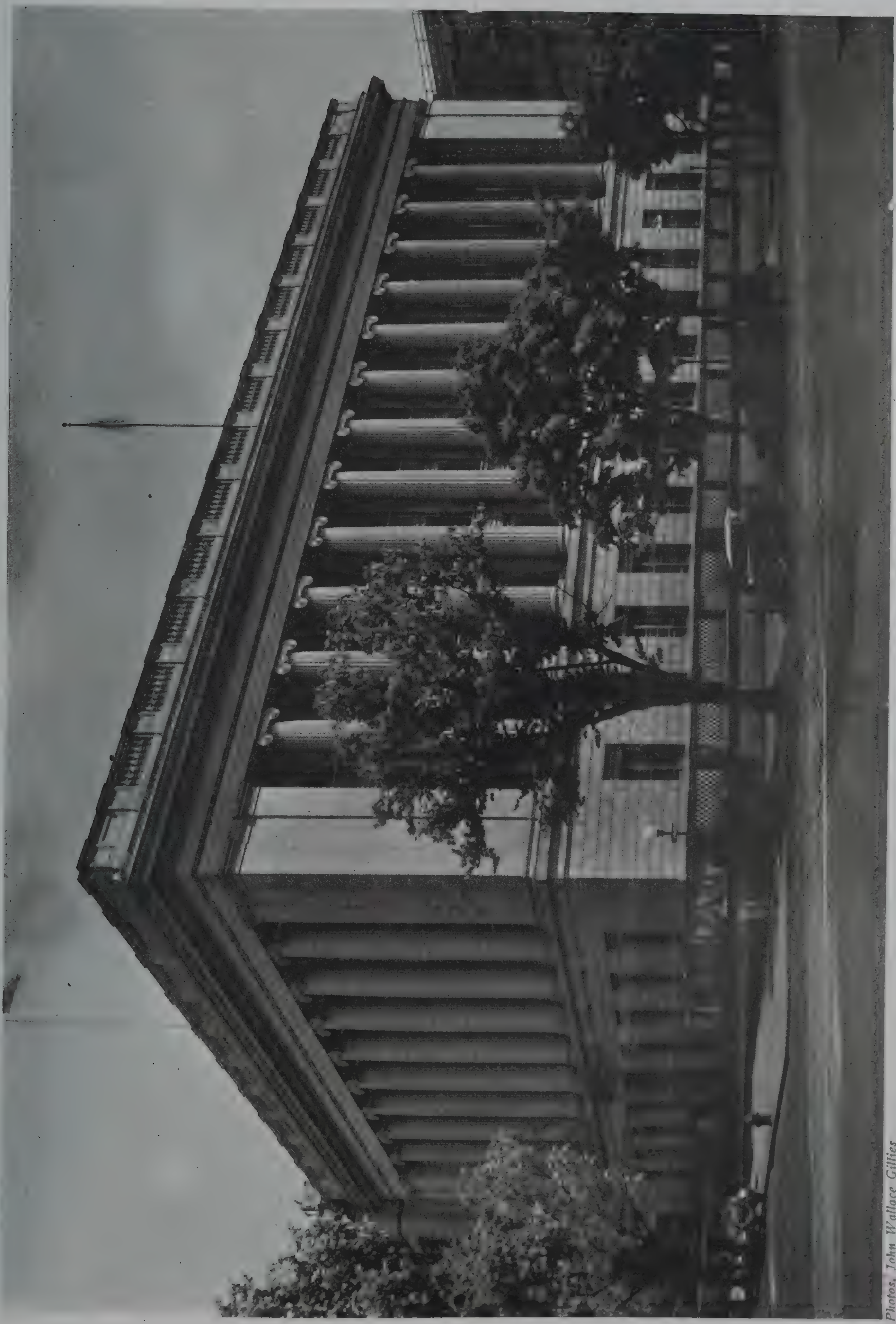
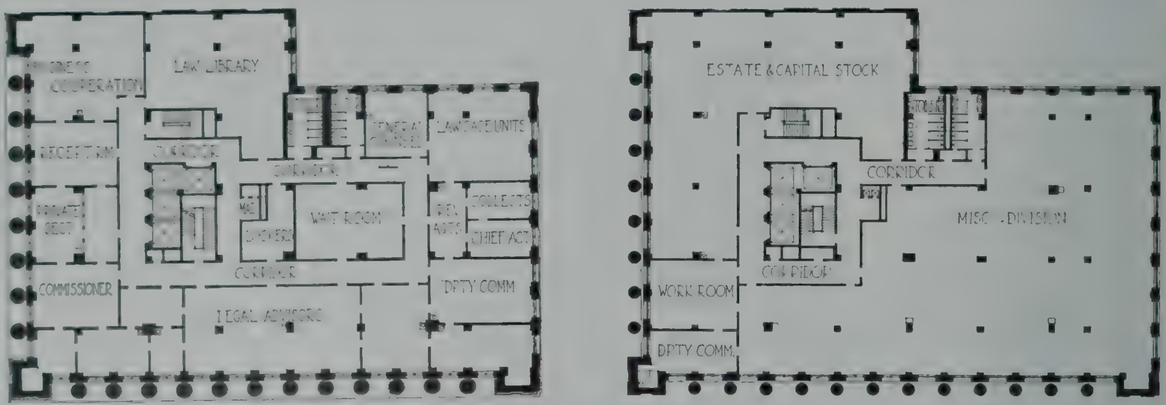


Plans on Back

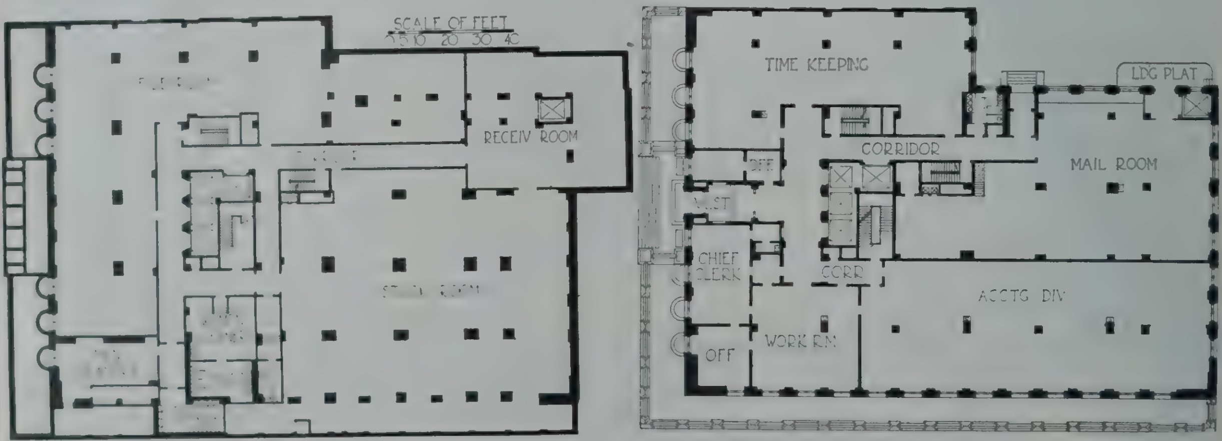
UNITED STATES TREASURY ANNEX, WASHINGTON
CASS GILBERT, ARCHITECT

Photos, John Wallace Gillies



SECOND FLOOR

THIRD FLOOR

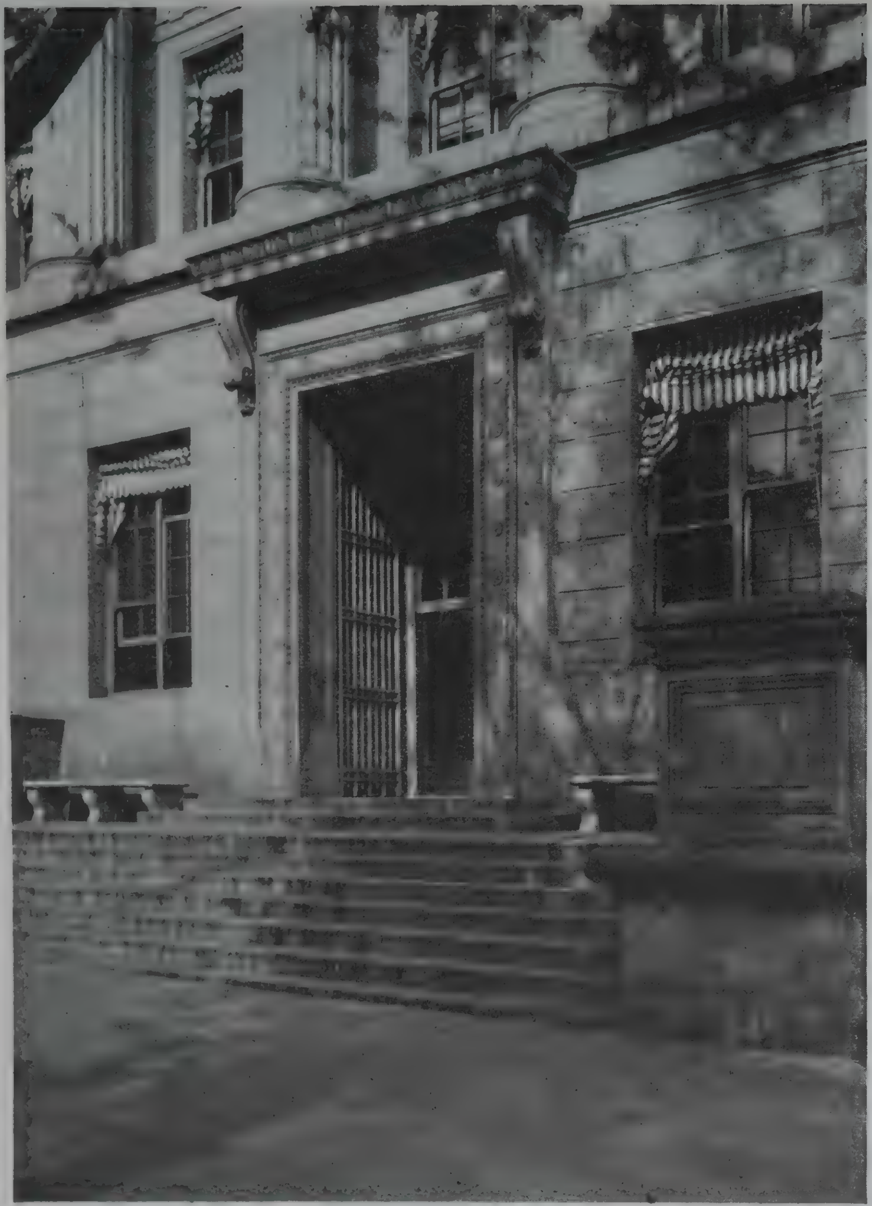


BASEMENT

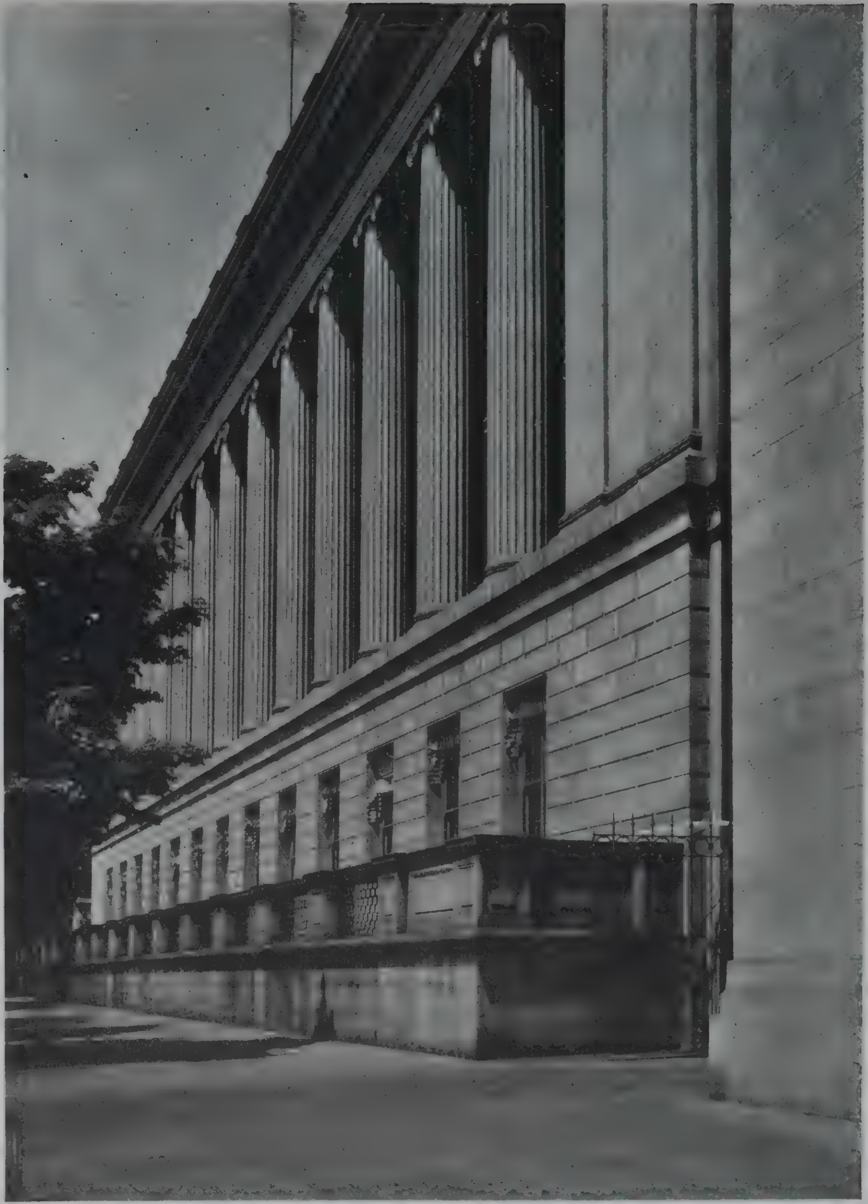
FIRST FLOOR

PLANS, UNITED STATES TREASURY ANNEX, WASHINGTON

CASS GILBERT, ARCHITECT



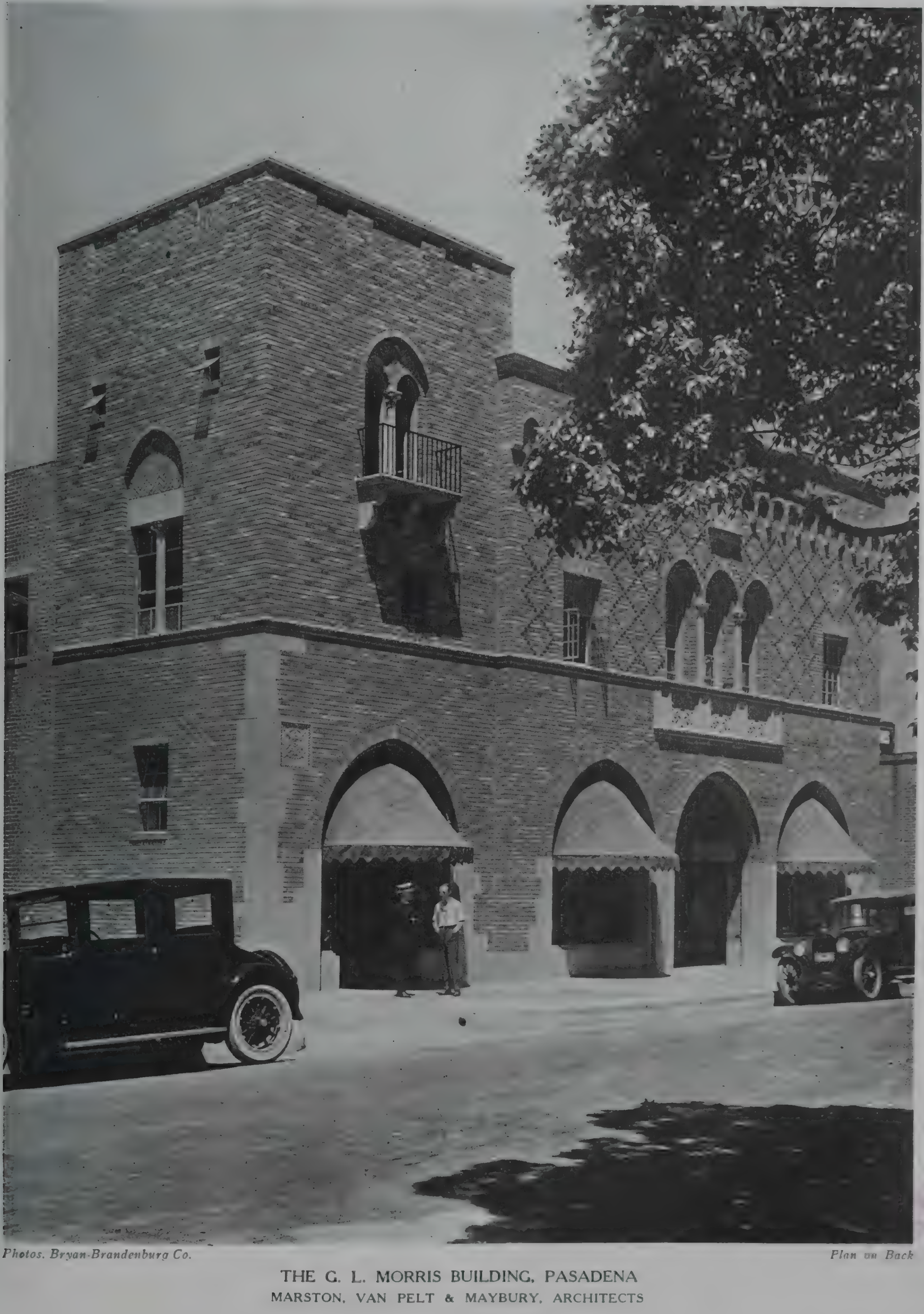
MAIN ENTRANCE ON MADISON PLACE



DETAIL, SIDE ELEVATION

UNITED STATES TREASURY ANNEX, WASHINGTON

CASS GILBERT, ARCHITECT



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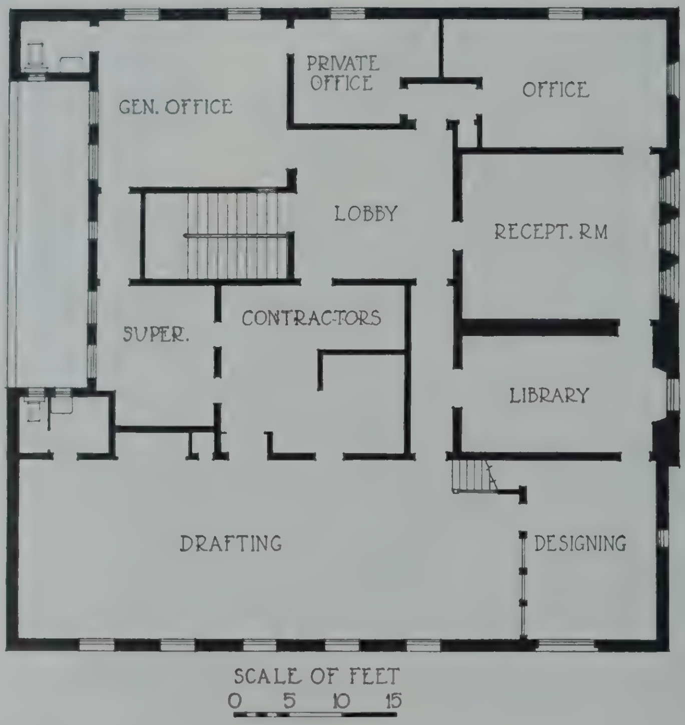
Flan on Back

THE G. L. MORRIS BUILDING, PASADENA
MARSTON, VAN PELT & MAYBURY, ARCHITECTS



PLAN, OFFICES OF MARSTON, VAN PELT & MAYBURY, ARCHITECTS

IN THE G. L. MORRIS BUILDING, PASADENA, DESIGNED BY THEM

Editor's Note. Through an unfortunate oversight there was omitted from THE ARCHITECTURAL FORUM for June any mention of the fact that this charming small office building in Pasadena, designed by Marston, Van Pelt & Maybury, served as the inspiration for the color sketch of an ideal small motion picture theater, drawn by Howard Moïse and used as the cover design.

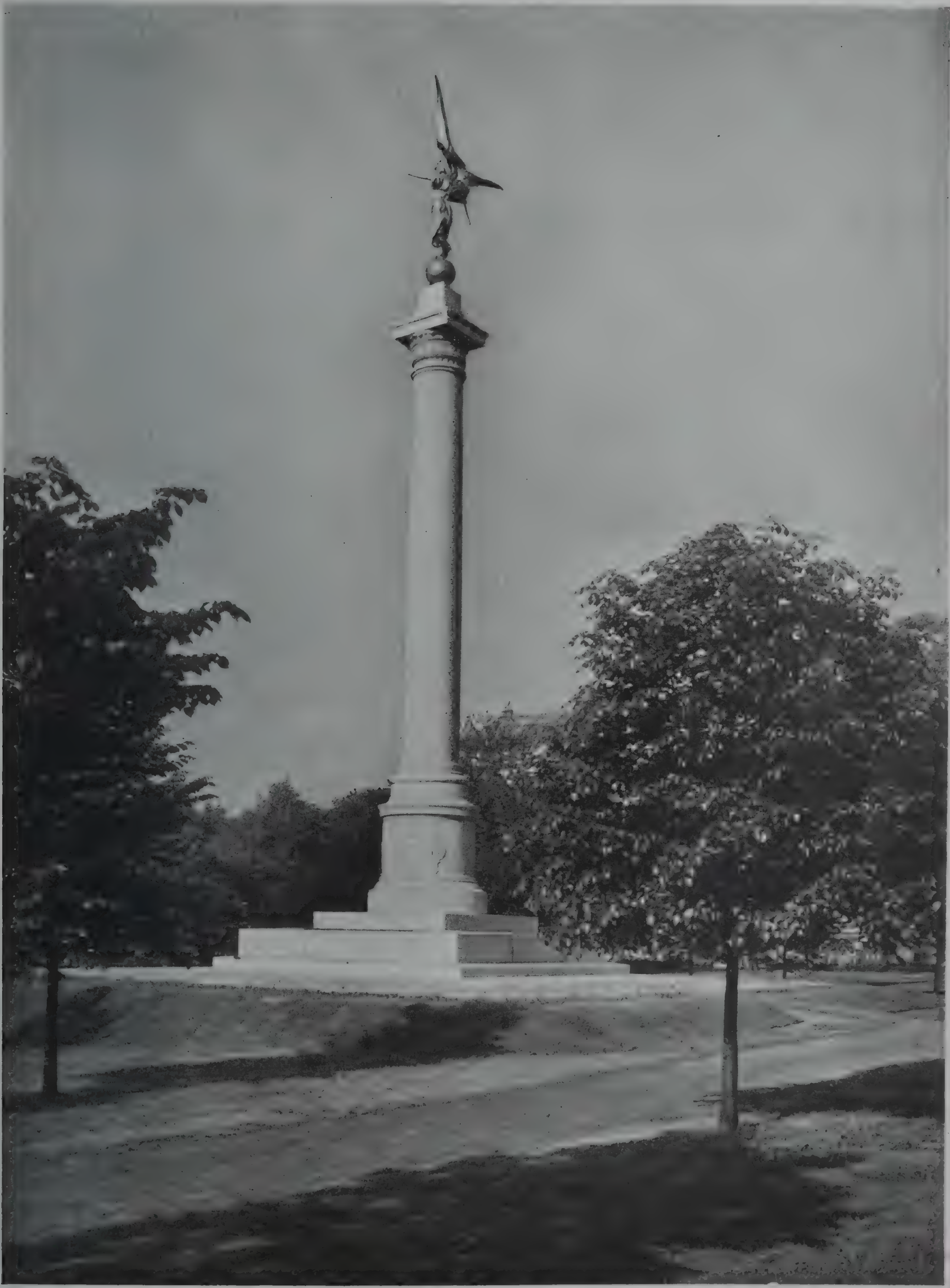


Photo. John Wallace Gillies

MEMORIAL TO THE FIRST DIVISION, WASHINGTON
CASS GILBERT, ARCHITECT

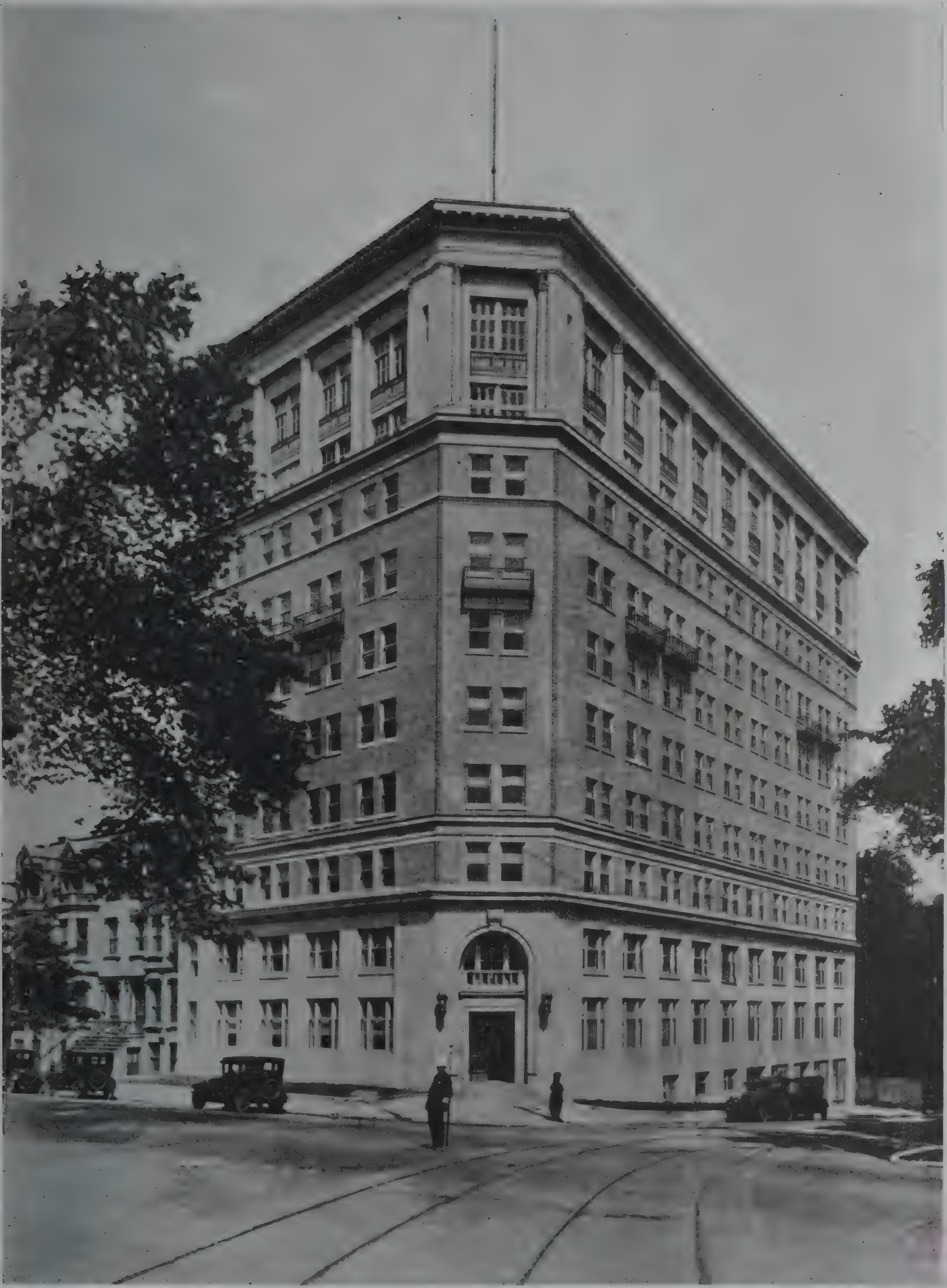
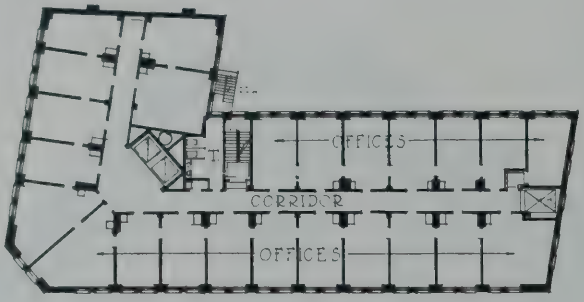


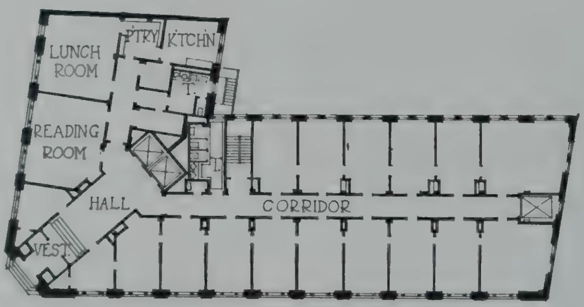
Photo. W. S. Keith

Plans on Back

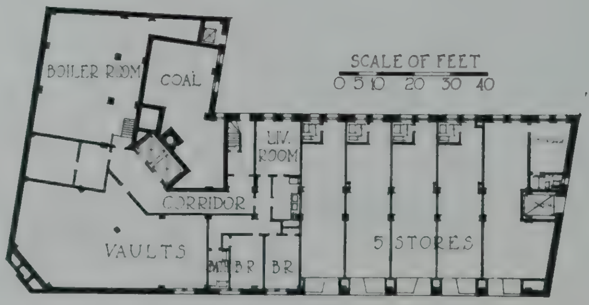
MEDICAL ARTS BUILDING, MONTREAL
ROSS & MACDONALD, ARCHITECTS



A TYPICAL FLOOR



FIRST FLOOR



BASEMENT FLOOR

PLANS, MEDICAL ARTS BUILDING, MONTREAL

ROSS & MACDONALD, ARCHITECTS

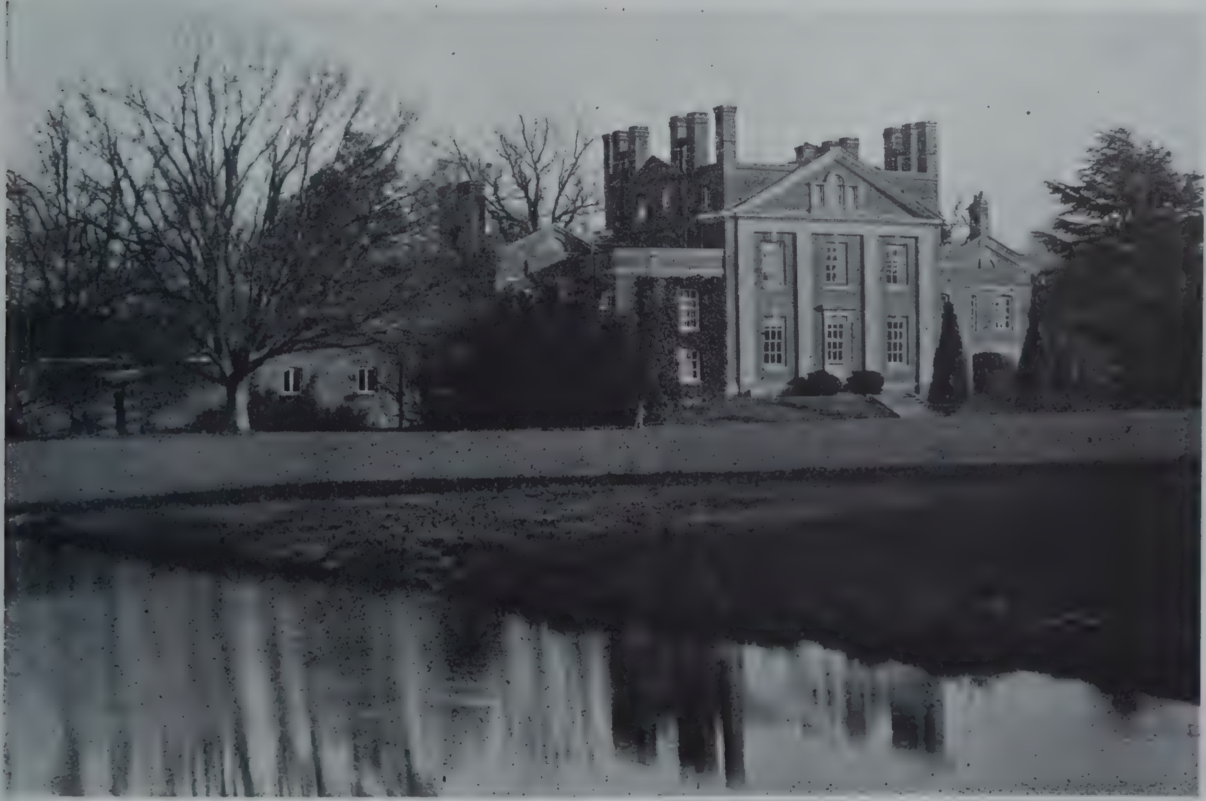
Warbrook, Eversley, Hampshire

By HAROLD DONALDSON EBERLEIN

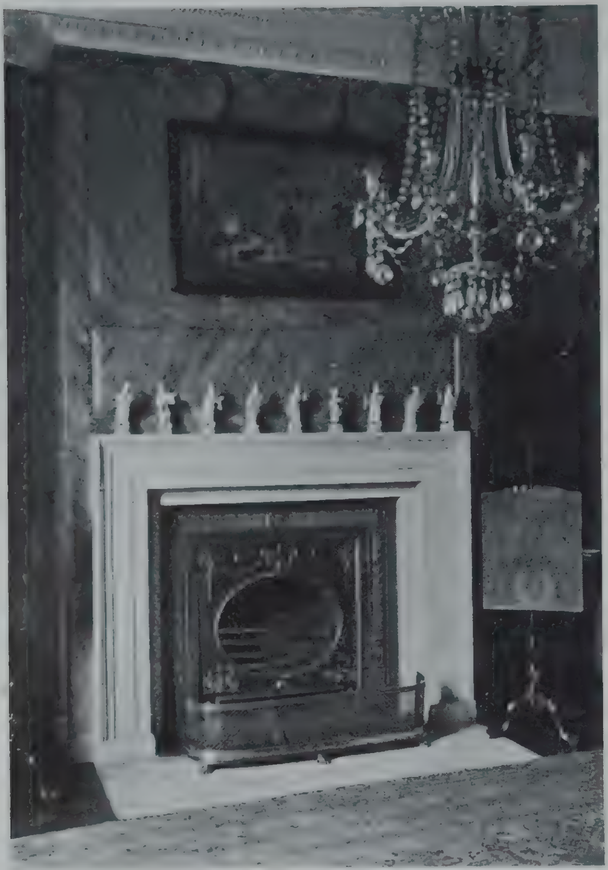
WARBROOK, at Eversley in Hampshire, claims our interest and attention on four counts. First of all, its own intrinsic beauty commends it to our favorable regard, and its fidelity as an exponent of one particular phase of the English domestic style of the period (a phase none too plentifully represented) renders it worthy of close study. In the second place, it is a choice example of a somewhat unusual thing,—a moderate sized house in the "grand" manner. Next, it is virtually intact, and has not suffered those numerous character-destroying changes and mutilations to which so many of the houses of its day have at some time or other fallen victims. Last, but by no means least, it is the home that an eminent architect of the early eighteenth century built for *himself,* and, therefore, it faithfully embodies his notions of what was fitting in domestic style. It is an index of his taste, peculiarly sincere and trustworthy because there was no element of clients' tastes or prejudices injected into it to injure it.

The epitaph on the tablet in Eversley Church, close by, tells us that John James, eldest son of the Reverend John James, Rector of Stratfield Turgis, "built the house called Warbrook in the parish, anno 1724," and died there in May, 1746, aged 74. "James of Greenwich," in 1705, succeeded Nicholas Hawksmoor as Clerk of the Works at Greenwich Hospital, and his intimate connection with Greenwich continued for 40 years, hence the title by which he is usually known. This post he held under Sir Christopher Wren, Sir John Vanbrugh, Colin Campbell and Thomas Ripley. In 1725 he was called "Surveyor," but as he did not actually hold that office at Greenwich, the mention is to be interpreted as a contemporary acknowledgment of his responsibility and capacity in the discharge of his duties rather than as an exact or precise official definition.

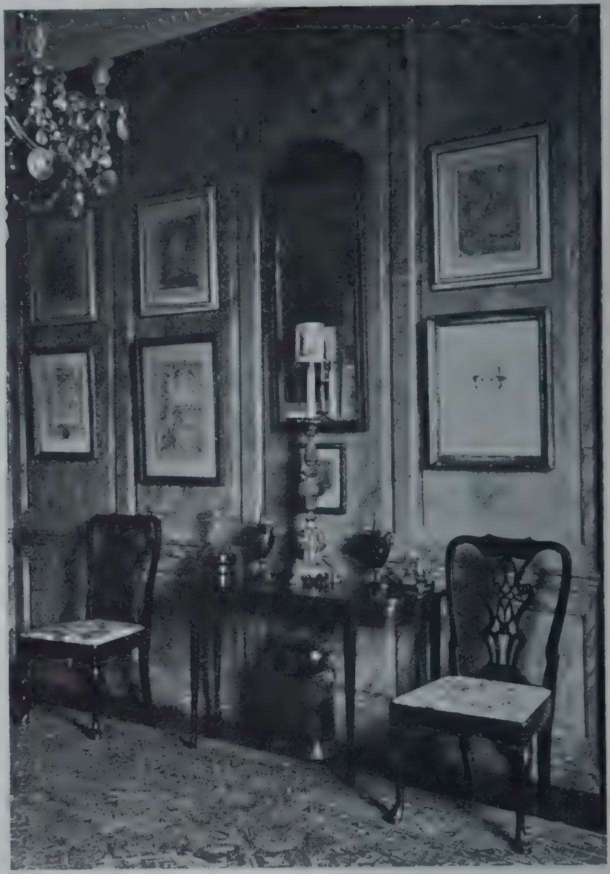
James' first independent work of consequence was undertaken in 1710 when he designed for the Honorable James Johnstone—the "Mr. Secretary Johnstone" at whom Pope aimed his shafts of satire—the house at Twickenham that long afterwards came to be known as "Orleans House," because of its connection with the exiled royal family of France. In the following year, 1711, Jennings, the "master carpenter" at St. Paul's, was removed by the commissioners who appointed James to succeed him at a stipend of £200 a year. The position created for James seems to have been a superintendency of the final work on the cathedral, and the appointment was presumably acceptable to Sir Christopher Wren, whose wishes, however, were often thwarted by the commissioners. At any rate, it was the beginning of a long connection with St. Paul's for, in 1716, James became "Assistant Sur-



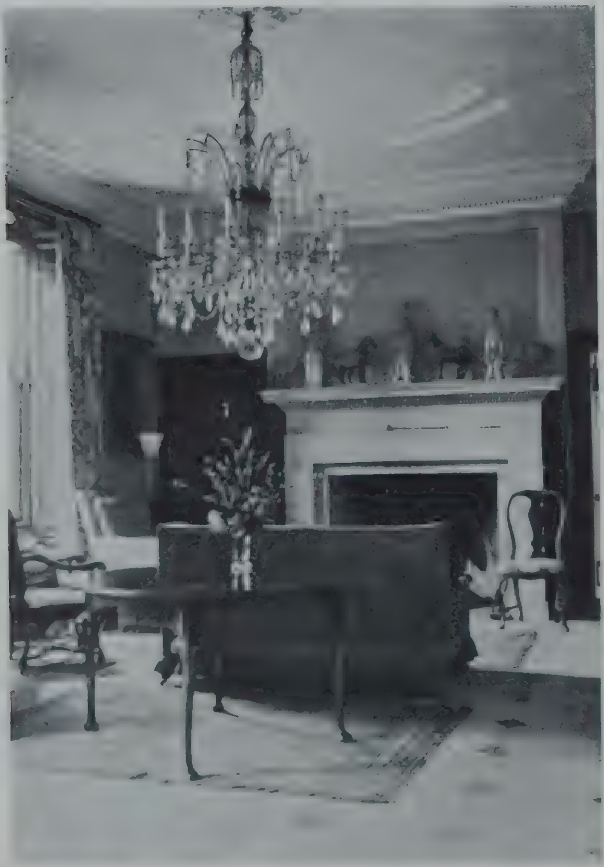
West Front of House from the Canal, Warbrook



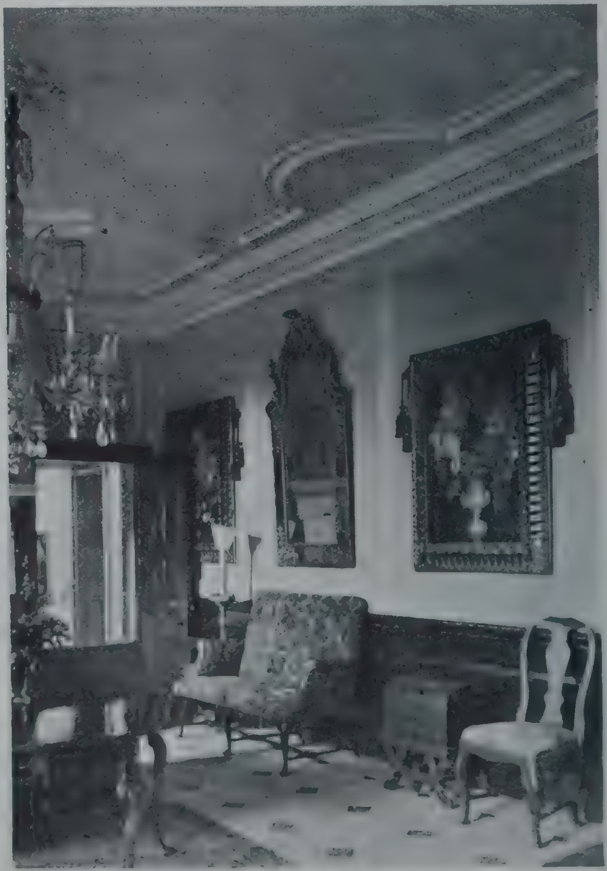
Marble Mantel in Dining Room



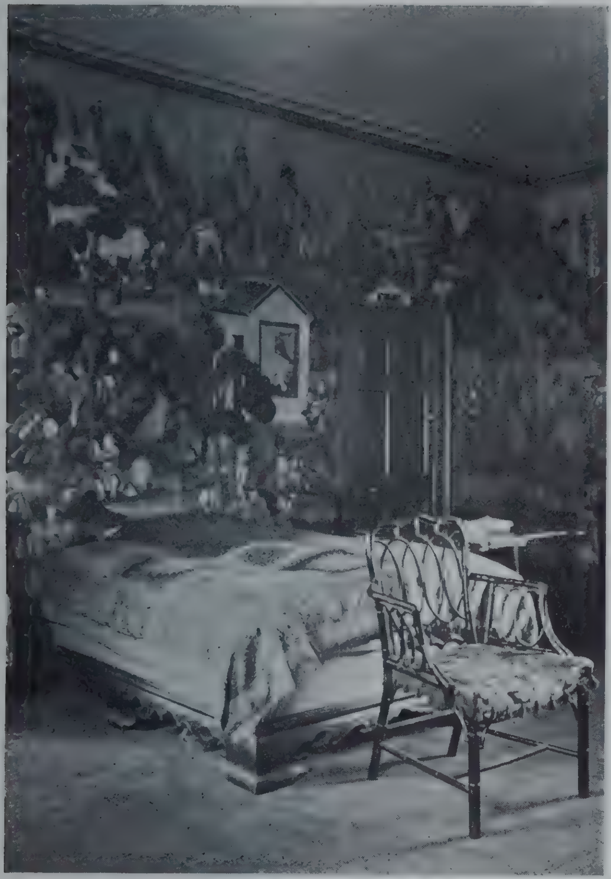
Dining Room Walls, Marbleized in Tones of Rose



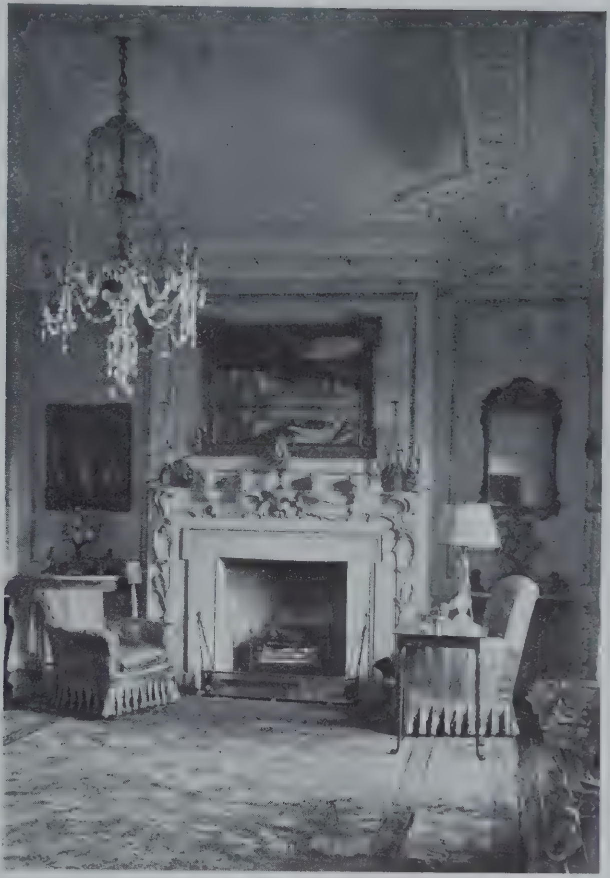
Fireplace in the Hall



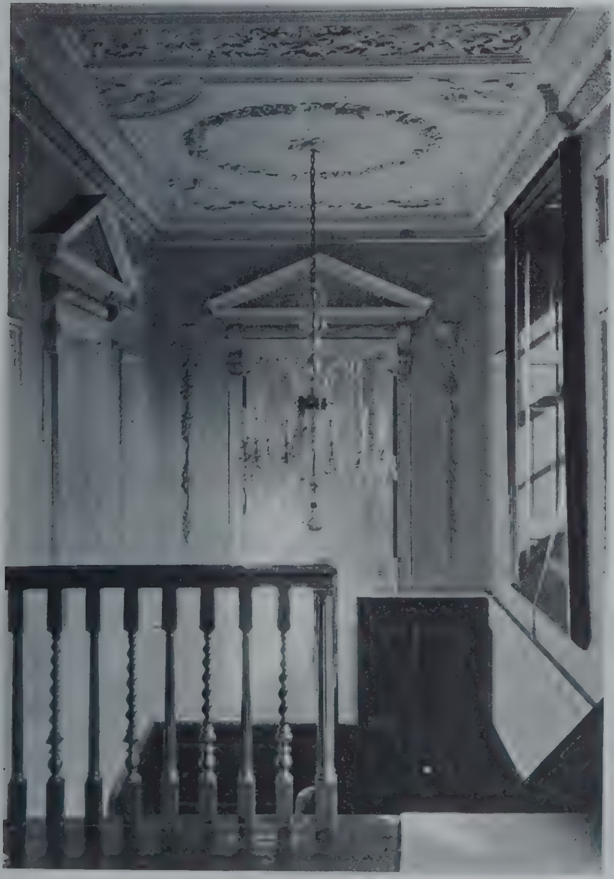
Side Wall in Hall



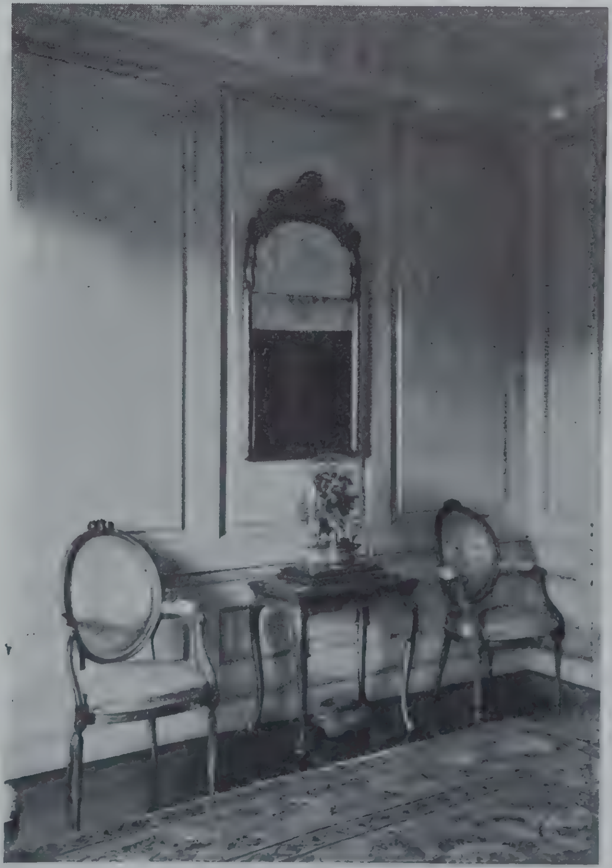
Bedroom with Old Chinese Wallpaper



Fireplace End of Drawing Room



Stairway from Upper Hall



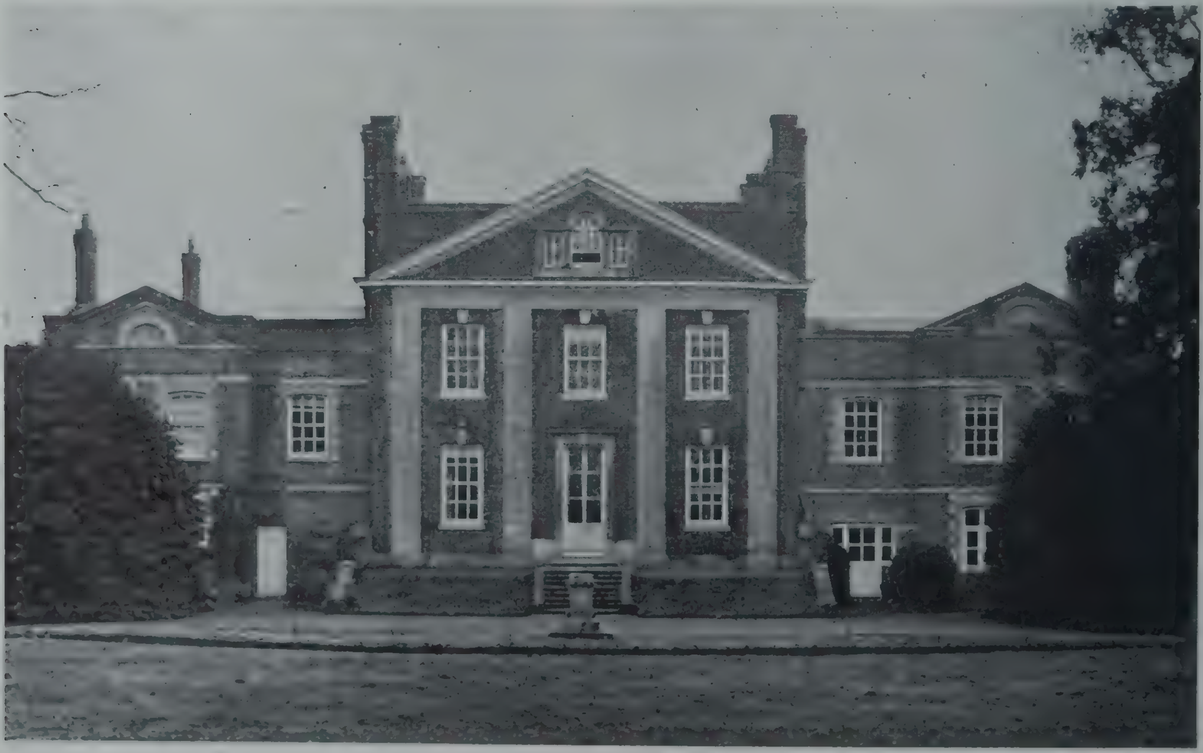
Drawing Room Is Painted Greenish Blue

veyor," along with Hawksmoor, and retained the surveyorship of the cathedral till the end of his life.

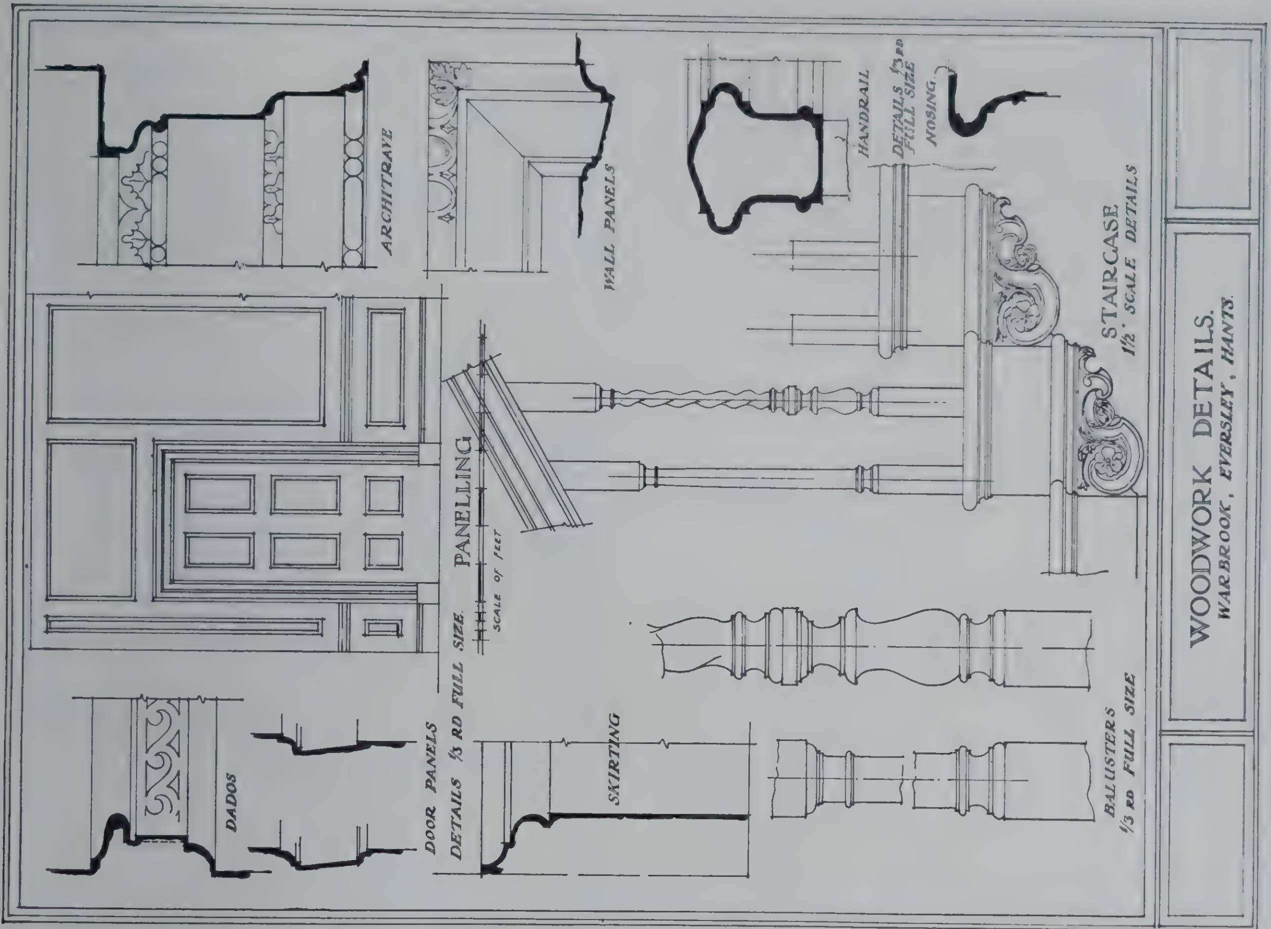
So far as the exterior of Warbrook is concerned, there is strong individuality resulting from an eclecticism in which it is possible to trace how James combined elements derived both from Dutch usage and from the more highly organized manner of Wren, without altogether overlooking the claims of that precise Palladianism which was then completely filling the architectural horizon. The general aspect of the composition is reminiscent of Batavian precedent, especially the up-springing, high-shouldered part of the central pavilion with its grouping of chimneystacks. Compare the east front with some of the elevations in Vingboon's book, and it will readily be seen how the influence of that once popular publication had left its impress upon the architect's mind. The restraint and calm, reposeful vigor are Wren's, and so likewise are some of the details. The banded architraves and arc-shaped heads of the windows in the wings recall French usage of a somewhat earlier day, while no very searching scrutiny is needed to detect evidence of a more than incipient Palladianism. A certain type of Dutch bluntness is plainly expressed in the four pilasters on each front of the central pavilion, pilasters without capitals, and supporting an entablature devoid of members and mouldings. Pilasters and entablature, in fact, are nothing but broad, flat bands projecting several inches beyond the brick face of the wall. This unusual feature of the design is trenchantly effective in its strong and elemental simplicity, and should find favor among the adherents of one professedly modern school. Incidentally, the treatment exemplified shows that it is not necessary to sacrifice architectural good manners in order to be frank and forceful. From whatever sources John James may have drawn divers items of inspiration, he combined and blended them according to his own original way of thinking, and in so doing he produced a virile, free and independent expression of domestic architecture invested with both urbanity and distinction as well as strong character.

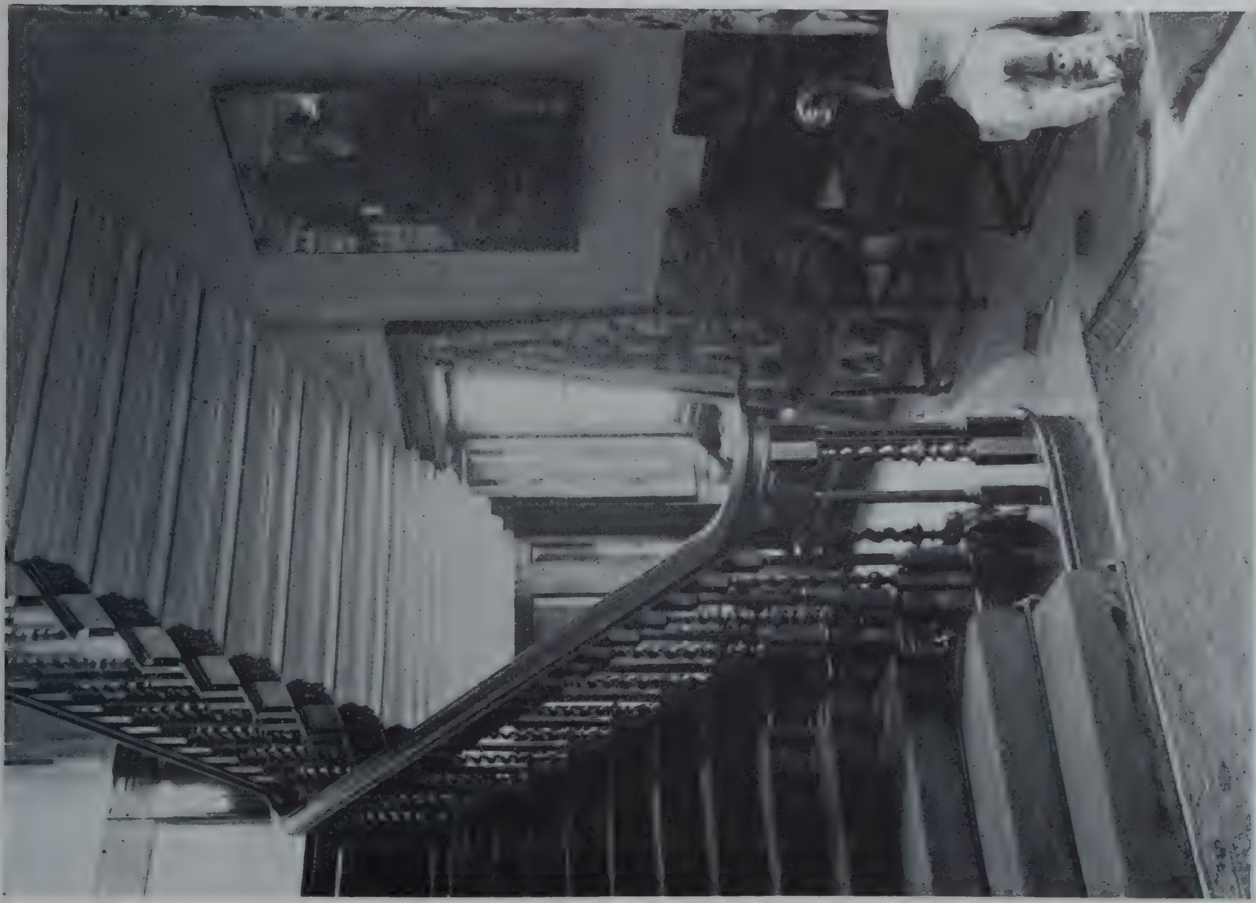
The interior of Warbrook testifies to James' good judgment on the score of decoration. The plasterwork, which is all coeval with the building, is especially noteworthy, particularly that which adorns the walls and ceiling above the staircase. The staircase itself, with its alternating fluted and spiral wooden spindles, the paneling of the walls, and all the other details of the woodwork, deserve careful examination. In the hall and in the dining room the fireplaces likewise are indicative of James' reticent yet robust manner. The grate in the dining room, it should be mentioned, though old, is of later introduction. When the brothers Adam were engaged, long after James' death, to make some decorative changes, they confined their efforts almost entirely to several of the bedrooms, and allowed most of James' work to remain untouched. The Rococo fireplace in the drawing room, the marble fireplace in the garden room, and the Chinese wallpaper in one of the bedrooms of the north wing were additions made when the house was restored for W. B. E. Ranken, Esquire, the present owner.

When Richardson & Gill undertook the restoration of Warbrook the fabric was in an almost derelict condition, and not only was it necessary to carry

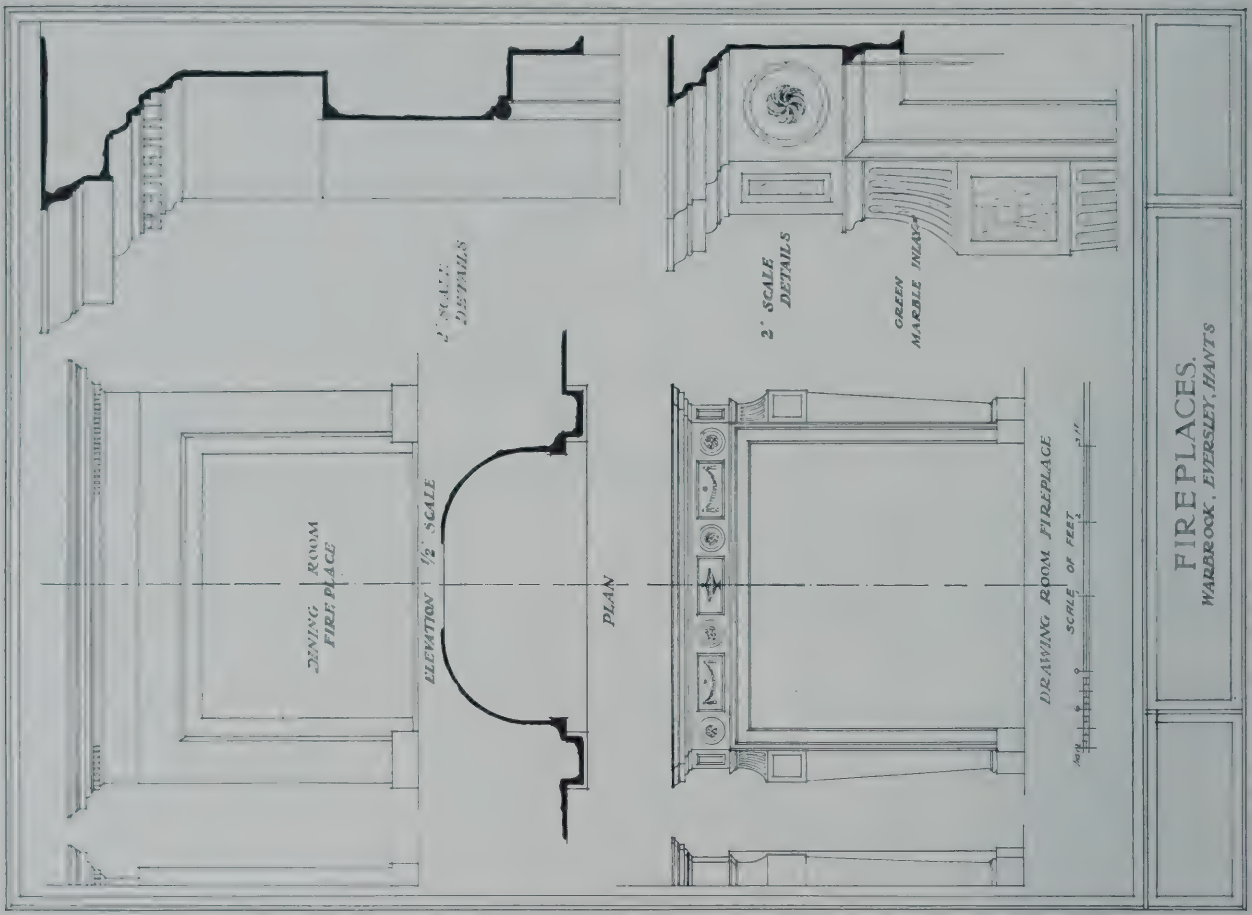


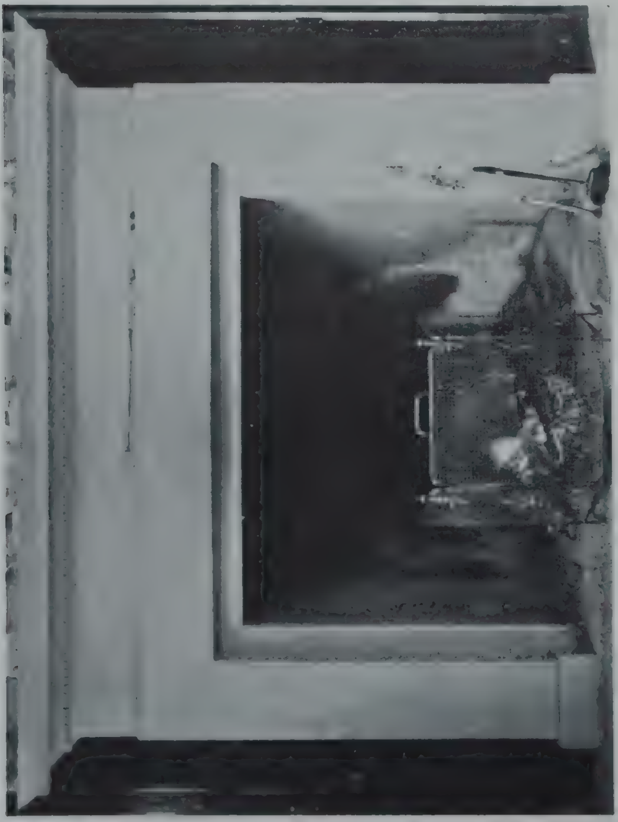
East Front, Warbrook, Eversley, Hampshire

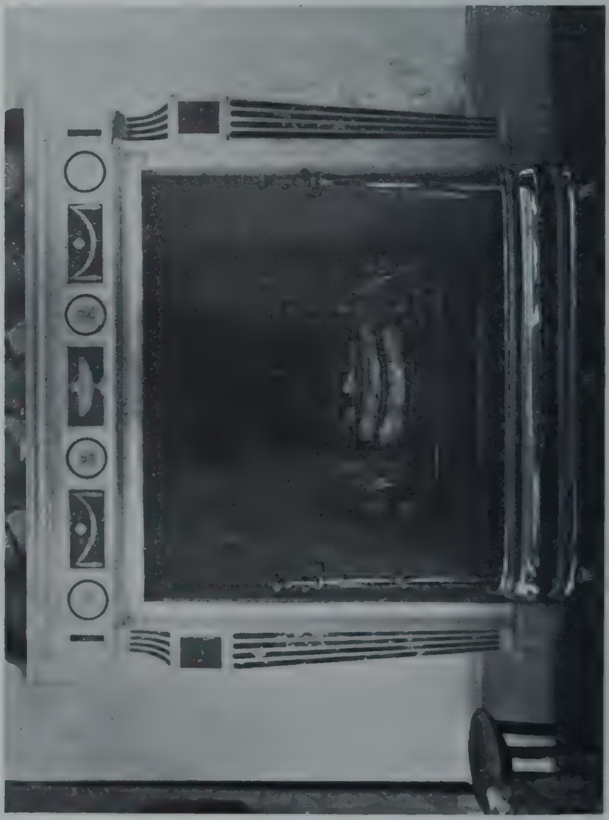




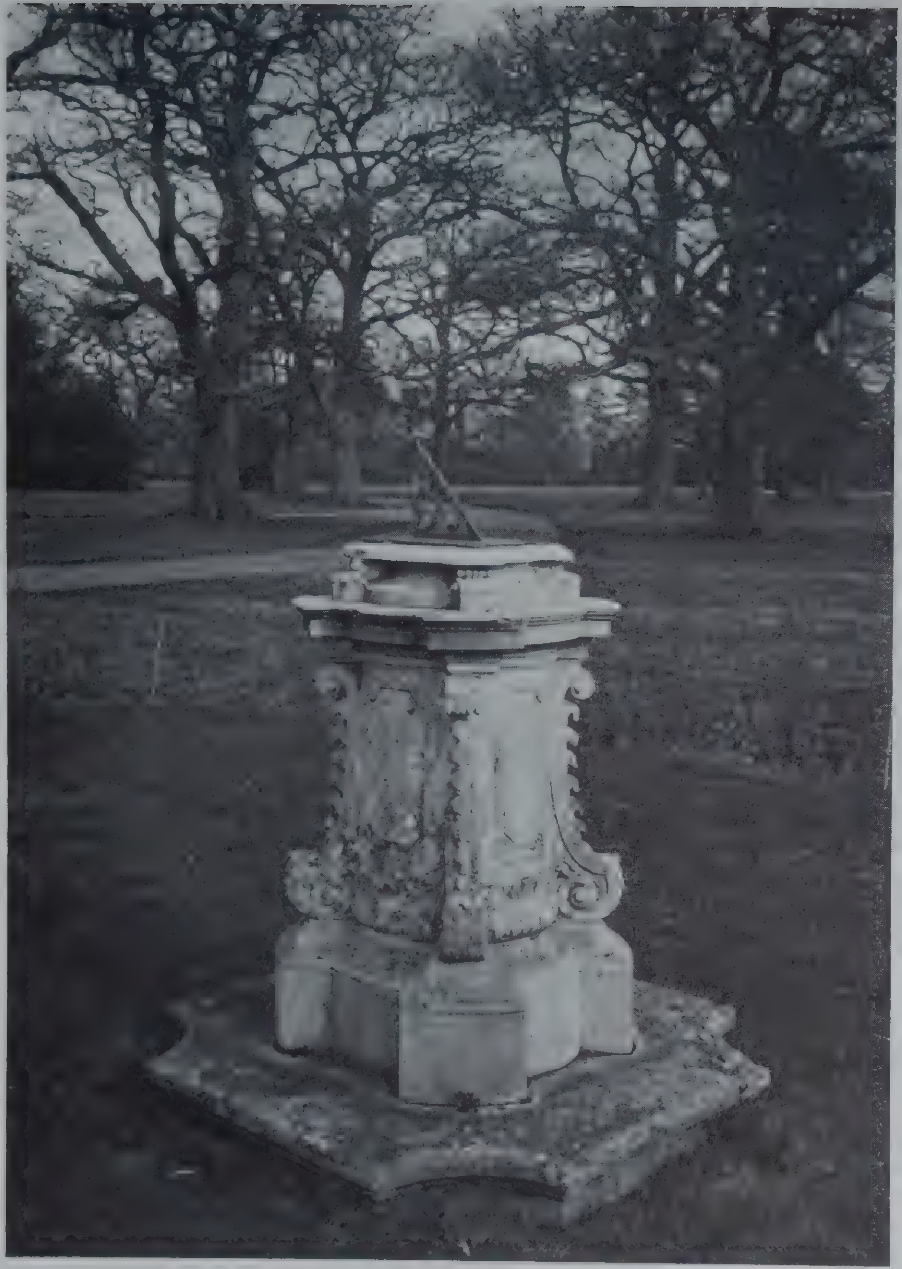
VIEW OF HALL AND DETAILS OF WOODWORK, WARBROOK

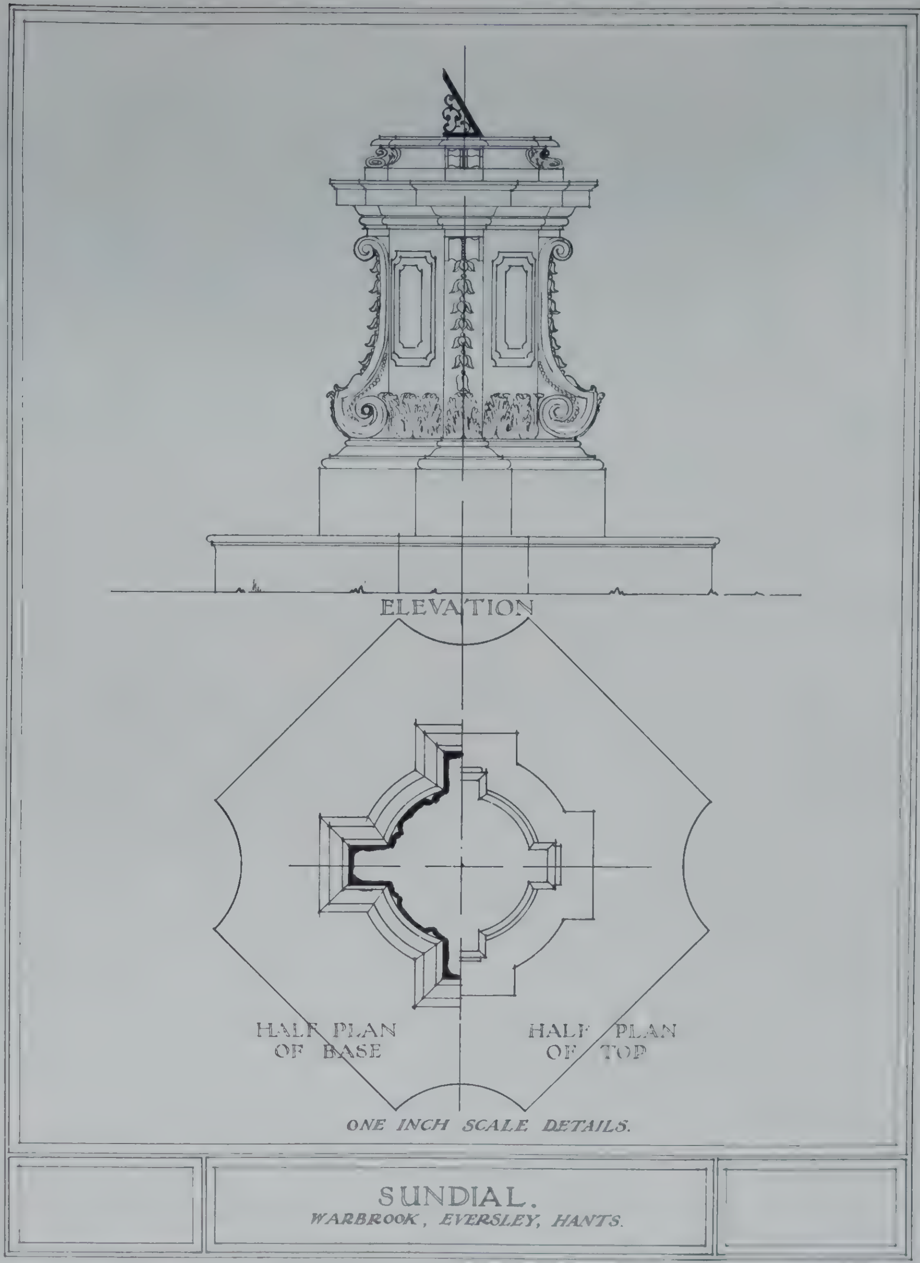






TWO FIREPLACES AND THEIR DETAILS, WARBROOK





SUNDIAL AT EAST FRONT OF HOUSE, WARBROOK out a conscientious replacement of such items as sashing and glazing, which had been ruthlessly altered years before, but extensive repairs were also imperative. Among other things, there had been a good deal of tampering with old floor levels in the south wing, and this involved virtual reconstruction in that quarter. Fortunately, the old stable court with its surrounding buildings had not been interfered with, but elsewhere endless work of an exacting and often minute nature was entailed in order to bring the house and its environment back to their original condition and aspect. The restoration, meticulously performed, was really exemplary *restoration* and not remodeling masquerading as restoration, and Warbrook is now as its designer would have left it. Only one minor building was added.

It is significant that James felt a deep concern in all matters appertaining to garden design, and that he endeavored to put into practice at Warbrook the principles he advocated in print. In substance, he realized what some architects and a great many laymen in America apparently fail to grasp when they seek to discover the peculiarly distinctive element of charm in rural British domestic architecture,—that the garden scheme is an inseparable part of the plan, and that garden and house together form an indivisible composition that cannot be sundered without the gravest consequences. However, this failure of perception is scarcely to be wondered at when one sees the hasty and superficial way the majority of Americans "do" rural England, at high speed without pausing a sufficient space of time to drink in and analyze the essence of that charm they profess so much to admire and consider so important.

Of the old formal garden, to the south of the house at Warbrook, there are no traces left. Its place has been taken by a box-planted, gravel-pathed parterre of modern origin, devised to atone so far as possible for the irreparable damage wrought in the days when the "naturalistic" enthusiasts were at the height of their power. A better fate, fortunately, befell the canals that bound the green, to the north of the house, and the long pool whose reflections enliven the vista through the woodland commanded by the windows of the north front. In James' translation of Le Blond's book occurs this passage: "Fountains and water are the soul of a garden, and make the principal ornament of it."

In the planning of his canals James consistently reflected contemporary continental influence in a dignified, pleasant and reasonable fashion without any of those whimsical exaggerations and overwrought mannerisms that eventually caused a revulsion of feeling and paved the way for the downfall of organized form in garden design when "Capability" Brown began his mischievous crusade to convert the erstwhile ordered beauties of English gardens into incoherent muddles of artificial savagery. In the scheme of radial clearings cut through the screen of woods on each side of the long pool may be seen the same temperate interpretation of the principles enunciated by Le Blond as in the arrangement of the water features. The water scheme and the radial clearings are fully set forth in the plan prepared by Richardson & Gill when they undertook the restoration of Warbrook. The canals had been partly filled up, but they have now been cleared and are restored to their pristine condition.

Stables, Warbrook, Eversley, Hampshire

SMALL BUILDINGS

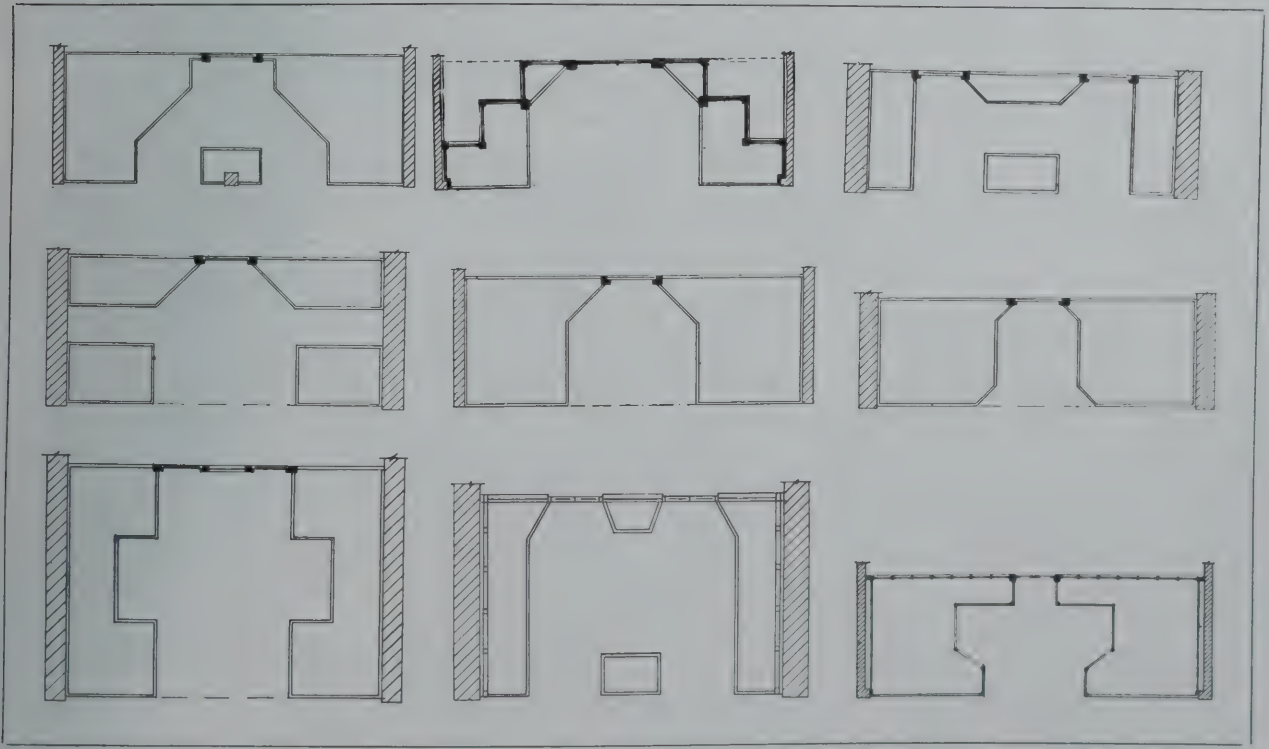
The Architecture of the Small Shop

PART II. INCREASING DISPLAY FRONTAGE BY THE USE OF METAL AND GLASS WINDOWS

Editor's Note. Part I of this series of articles, entitled "Design Derived from Period Precedent," appeared in the February, 1925 issue of The Architectural Forum.

FROM the standpoint of the architect, the problem of designing display fronts for small stores and shops is divided into two basic parts. The first of these, as dealt with in the earlier article of this series, is primarily a problem of architectural design in which the shop front as an integral part of the facade composition is to be architectural in its nature, with opportunities for the actual display of goods as perhaps a feature secondary to the pleasing appearance of the exterior. For stores and shops of this nature the fronts are usually developed from designs based on a period precedent, and are often composed of carefully detailed architectural entrances with window surfaces broken into small panes and recesses. The second part of the problem is to provide large areas of unbroken display window space, or to provide recessed or arcaded shop fronts when extensive displays are required for comparatively narrow lot frontages common in cities and towns.

The great increase in land values throughout the commercial districts of larger cities and towns has brought about a condition under which the area of the individual store or shop has been reduced to the minimum, particularly the width of its frontage. At the same time requirements for almost all types of merchandise display have grown, so that the natural solution of the problem has been the development of carefully planned shop windows, such as the several suggested in the small sketches presented herewith. It will be noted that in each instance an effort has been made to increase the actual footage available for display windows, and that by well planned recesses and the use of the so-called "island" show windows it is

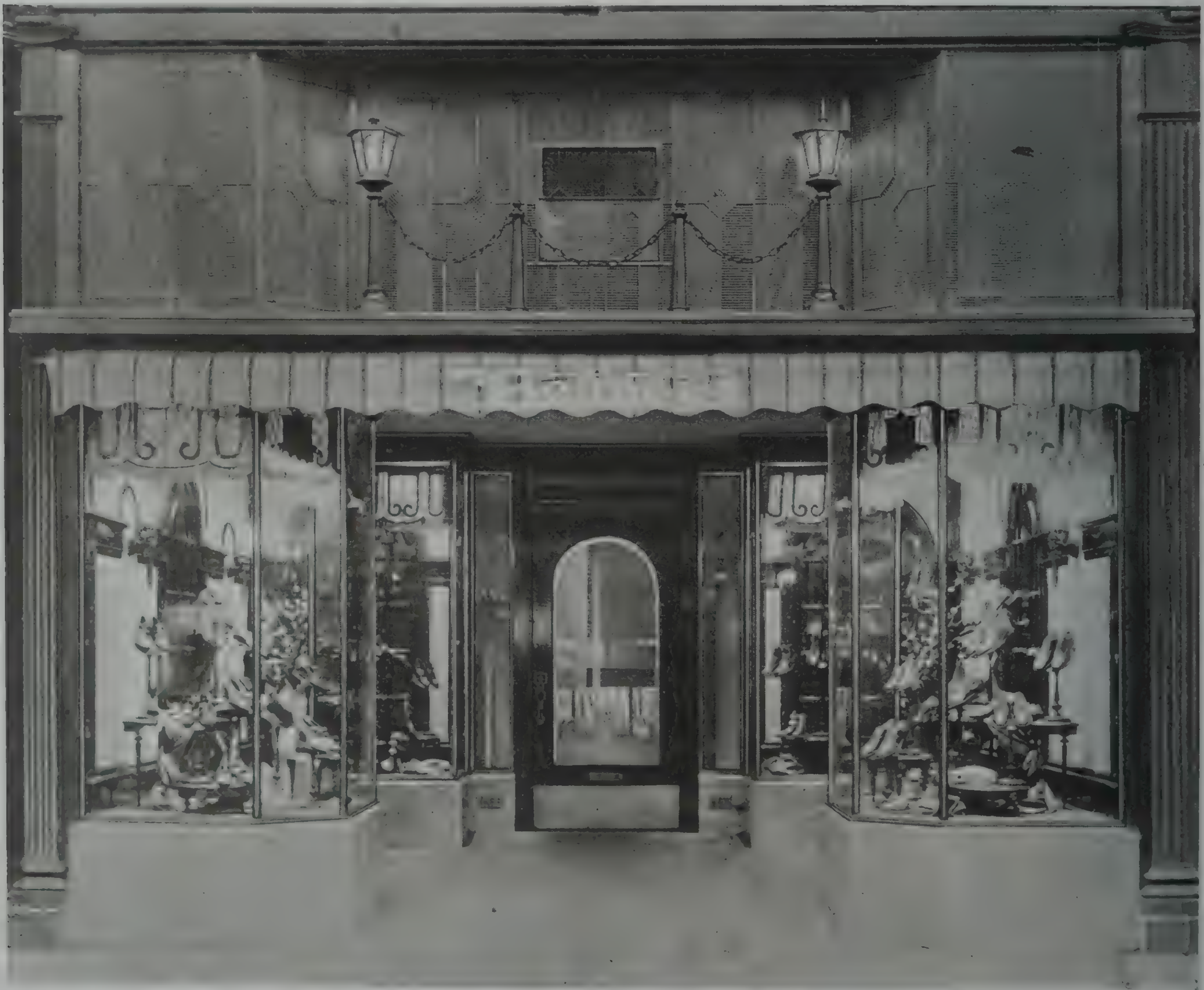


A Few of the Many Practical Planning Methods Which Are Possible with the Use of Metal and Glass Windows and Which Provide Greatly Increased Linear Footage of Show Windows for Smaller Shops and Stores possible to obtain a display frontage of three or four times the number of linear feet represented by the actual width of the store. The introduction of practical types of metal store fronts, in the construction of which large sheets of plate glass are held in position by specially designed metal mouldings or muntins, has made possible the provision of attractive, efficient store fronts, in which full advantage can be given to the display requirements. From the merchandising point of view, and also from that of reducing the depreciation and breakage factors, these metal and glass store fronts are unquestionably far better than anything else which has yet been devised to serve this purpose.

A careful study of this flexible method of designing shop fronts will indicate to the architect several points which might be overlooked in a hasty examination. In the first place, there are available in stock many well designed metal mouldings which can be incorporated in either the simple or the complicated shop front design. Show windows of all sizes and shapes can be built up according to the architect's wishes, and with the recessed effects which are possible there is no limit to the practical carrying out of almost any architectural scheme, with several added advantages over the older methods of setting show windows in wood or iron frames. These metal mouldings have been carefully designed to hold the sheets of plate glass in a resilient grip, which eliminates practically all of the danger of cracking and breaking, since it permits free vibration of the glass.

From the architect's point of view there are no definite standards of design established for metal and glass show windows, but the adaptability of this construction is such that the ingenious architect can readily design straight shop fronts in large glass areas or recessed fronts on almost every type of plan, while the entire front thus provided may be established as an attractive part of the exterior architecture of the building.

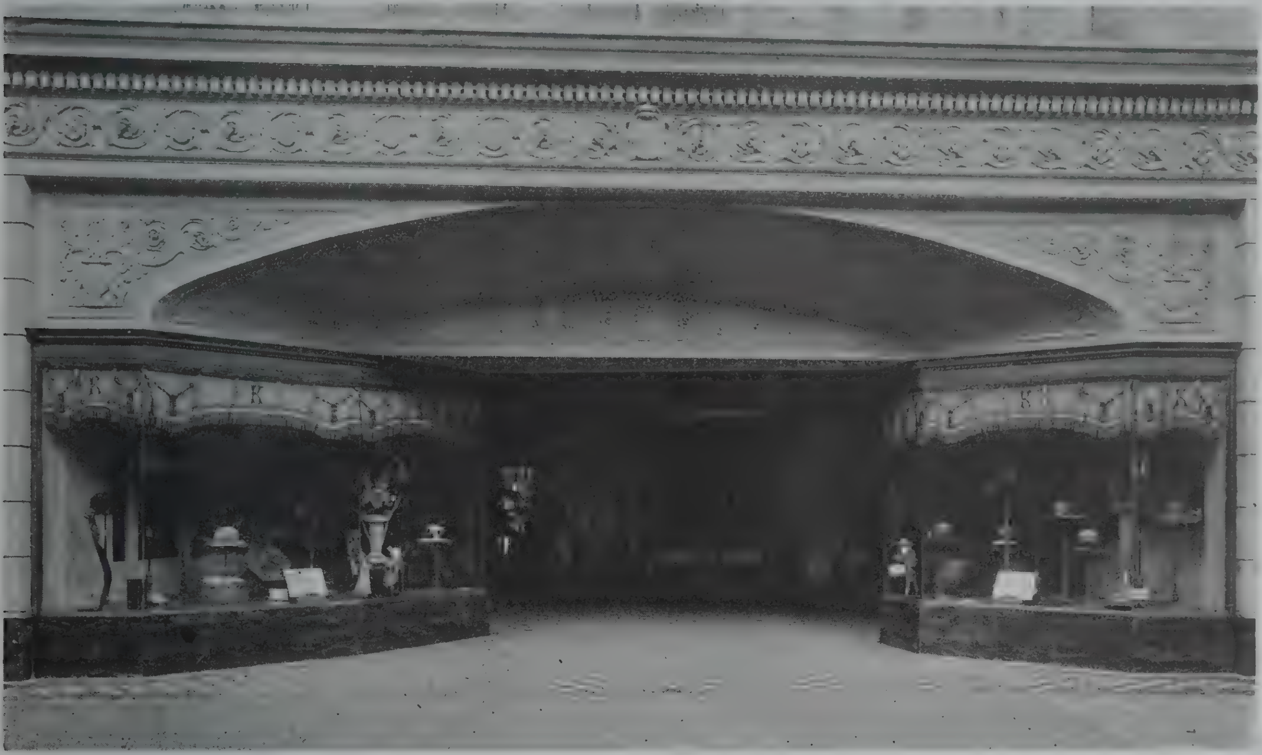
The purpose of this article is not to describe the technical details of metal and glass window construction, but to indicate the possibilities of plan and design from both the architectural and the equally important merchandising point of view to be achieved.



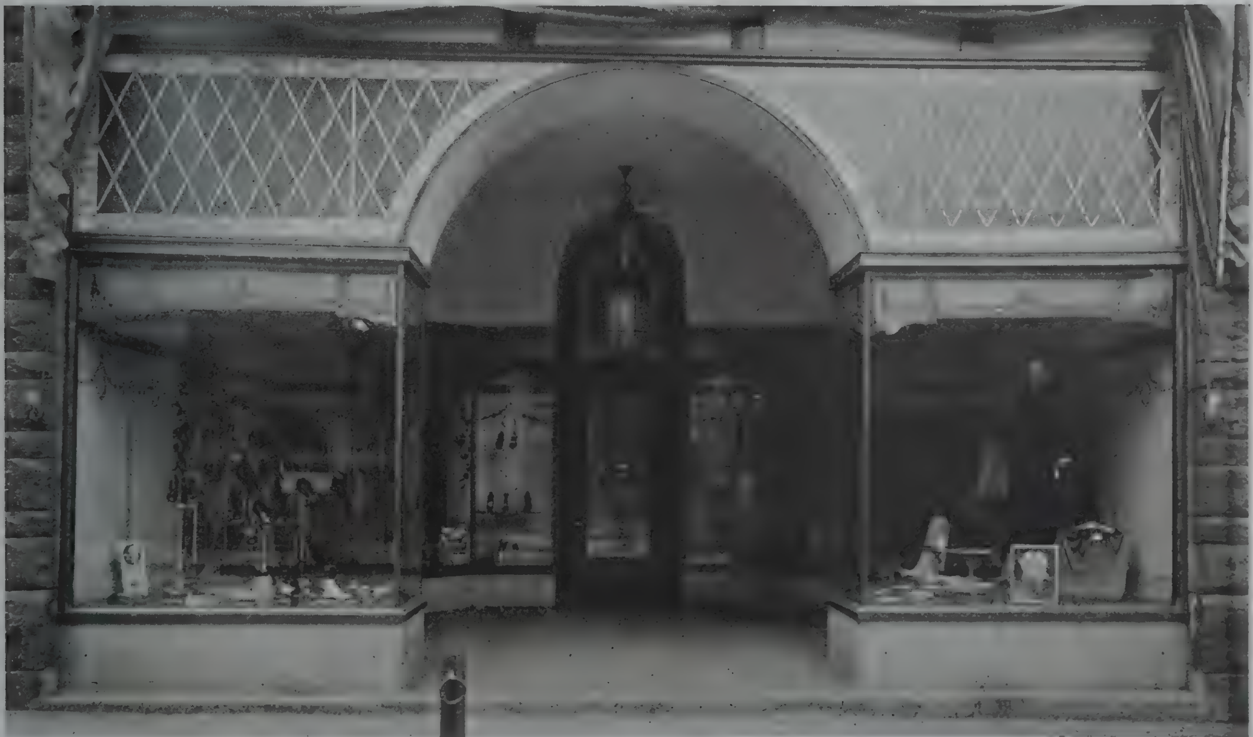
A Typical Shop Front Planned to Provide Increased Display Frontage on a Narrow Lot

Typical Recessed Shop Fronts

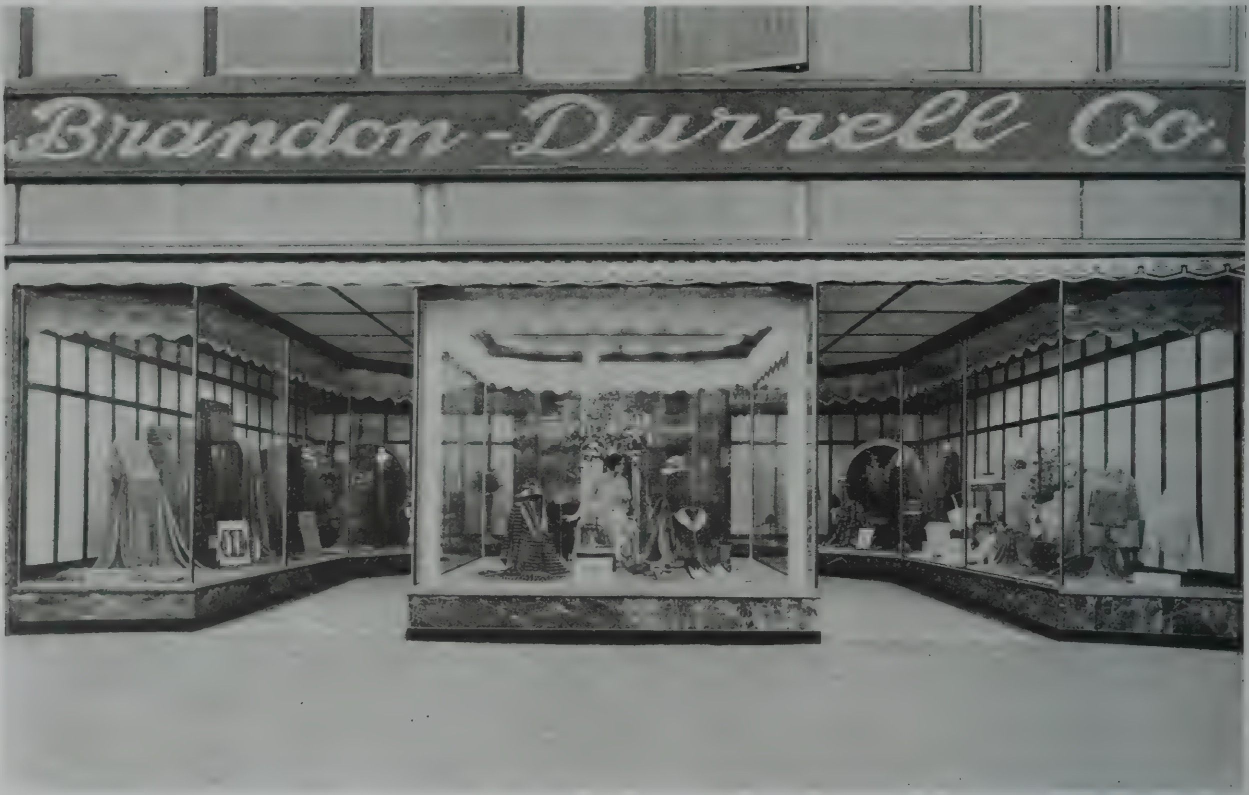
The following pages illustrate many methods of planning shop fronts to meet the modern demand for increased display frontage combined with low maintenance costs and proper safeguarding of plate glass installations by being set in carefully designed metal mouldings.



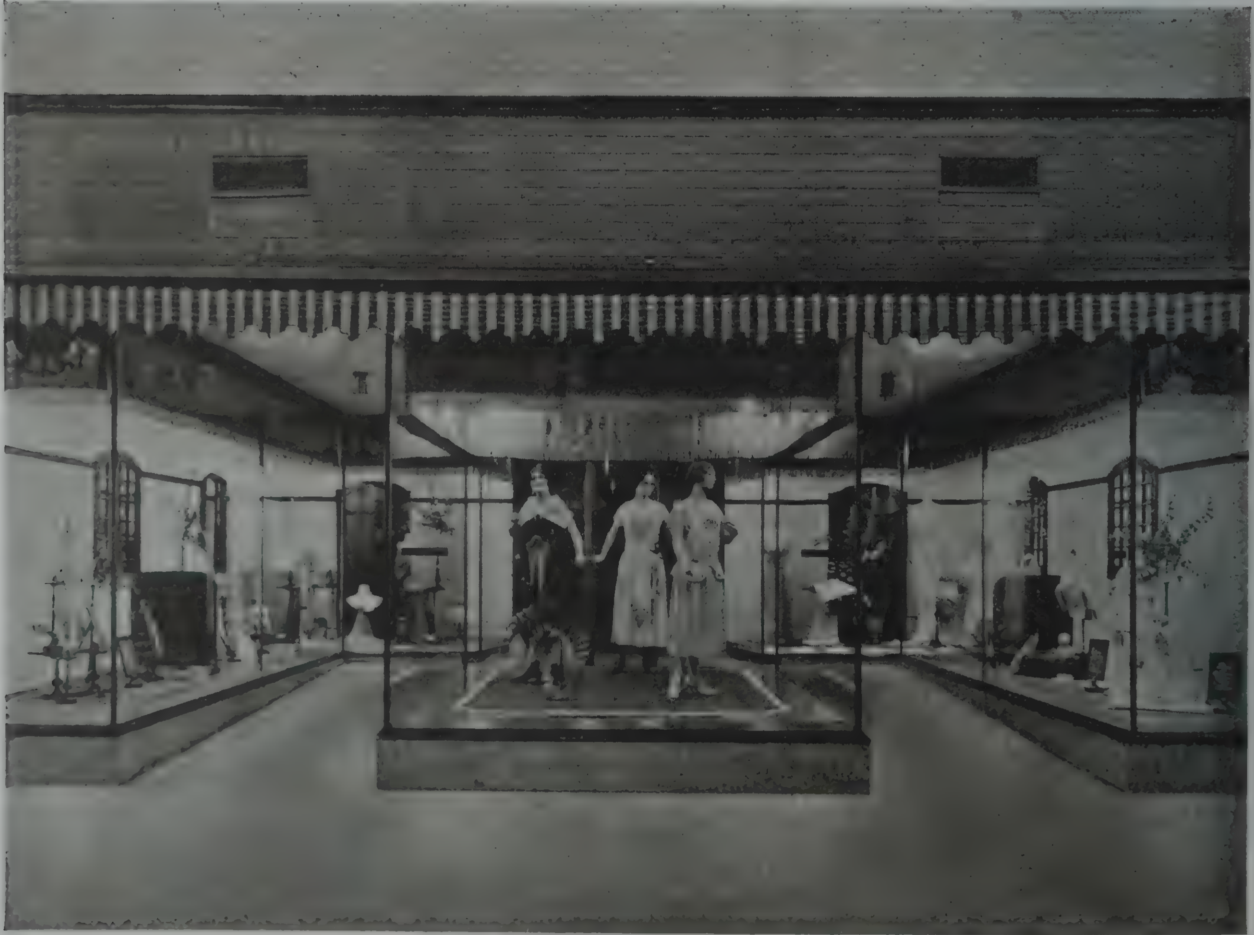
Arthur L. Kaufman Store, New Orleans; Weiss & Dreyfous, Architects

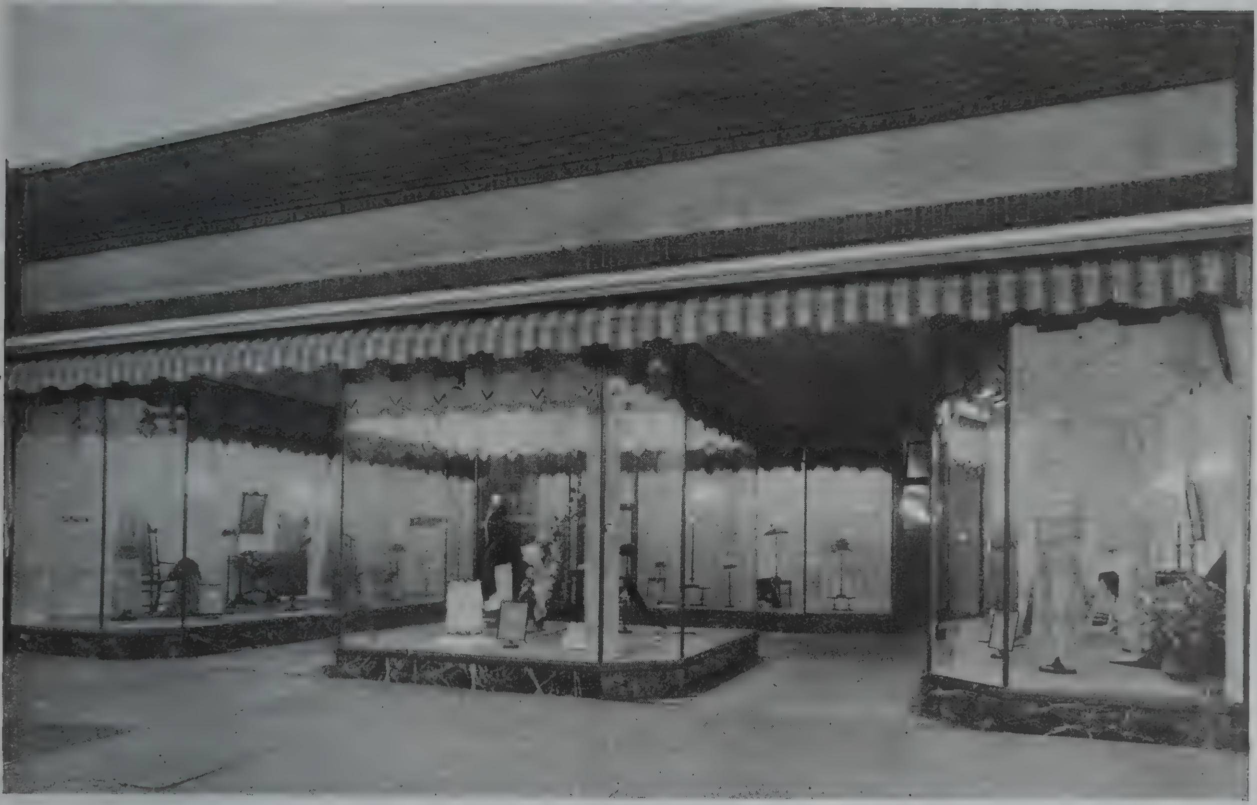


The Morrison Shop, Pittsburgh; Another Example of the Arcaded Type of Shop Front, Which Invites Passers-by to Step in from the Street and Examine Merchandise at Leisure

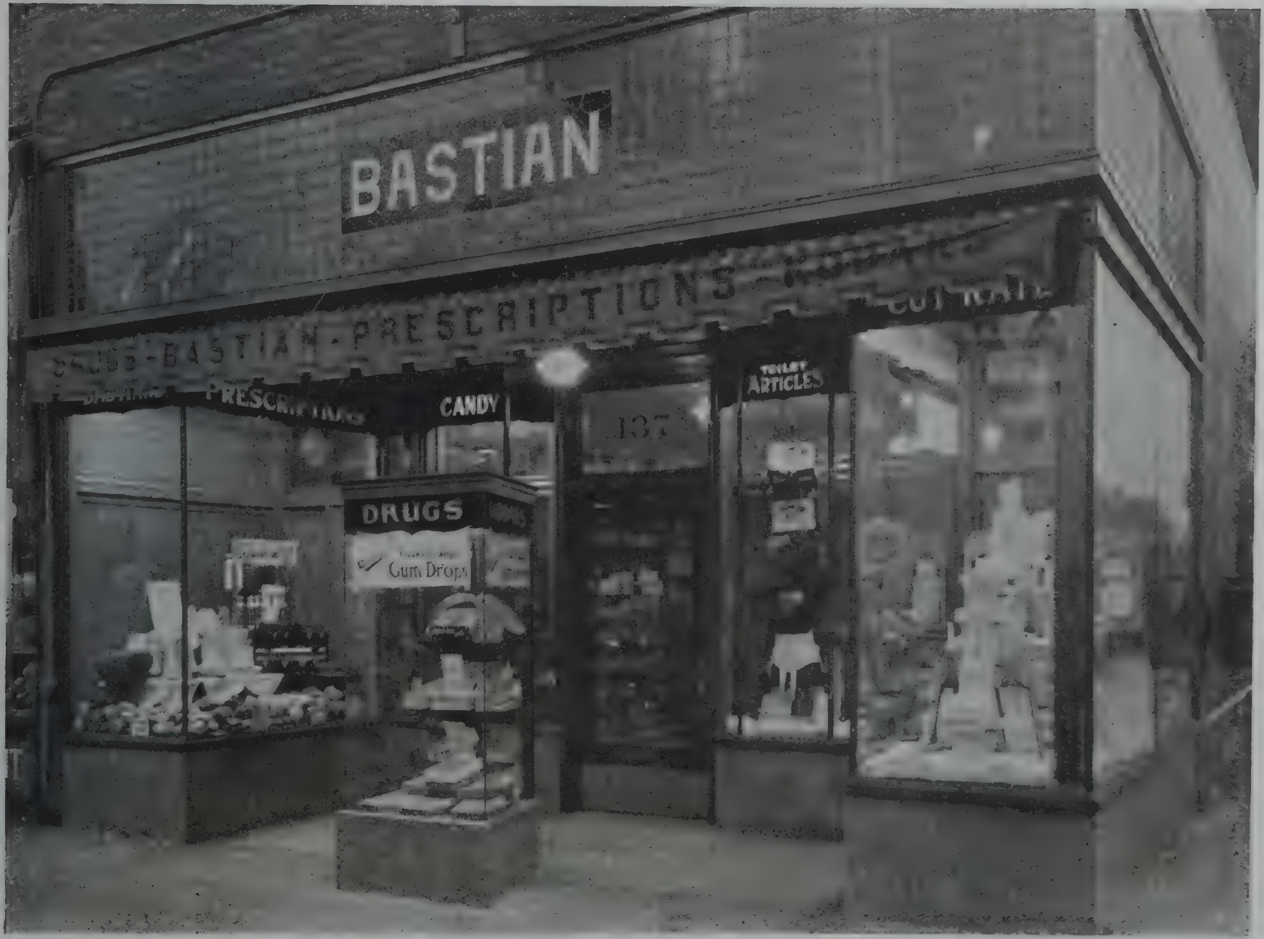


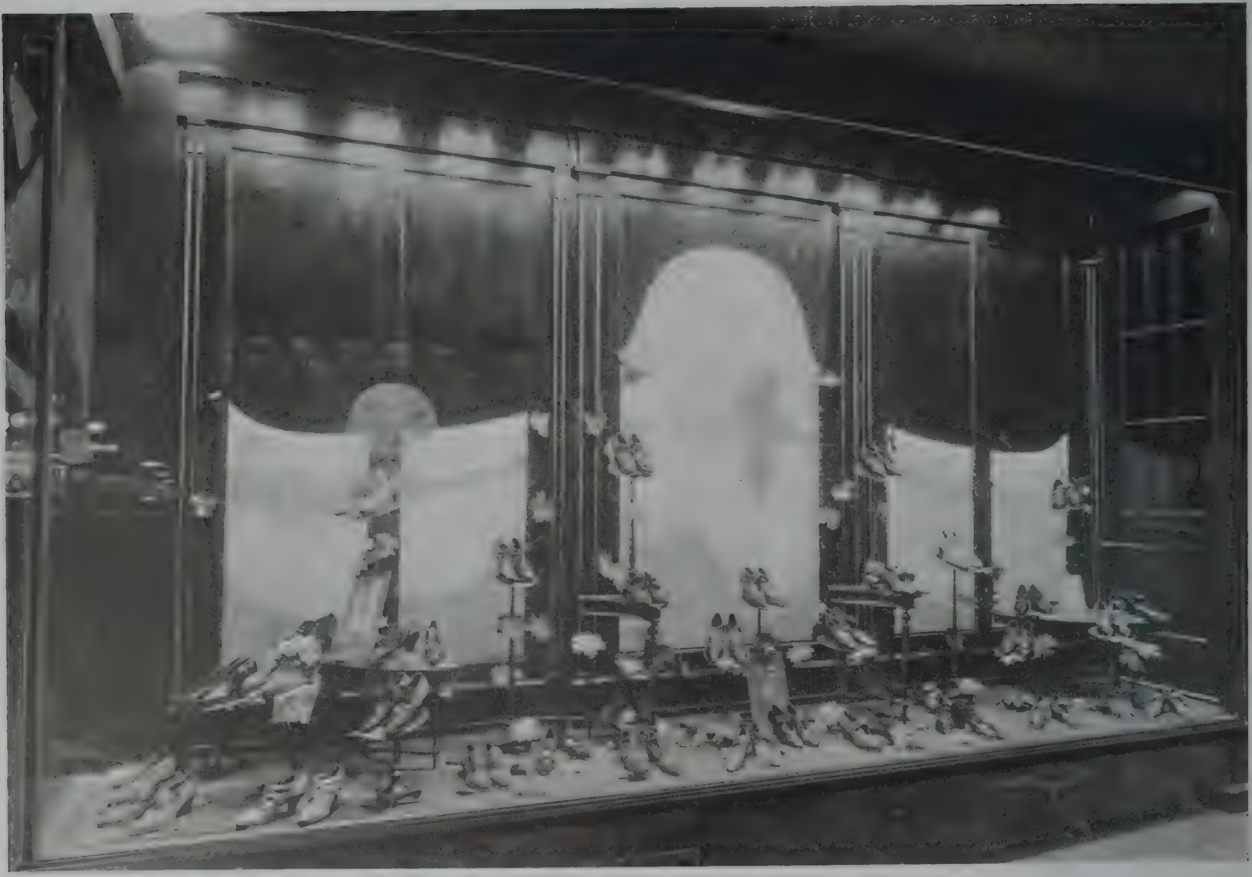
Examples of Recessed Shop Fronts with Island Display Cases



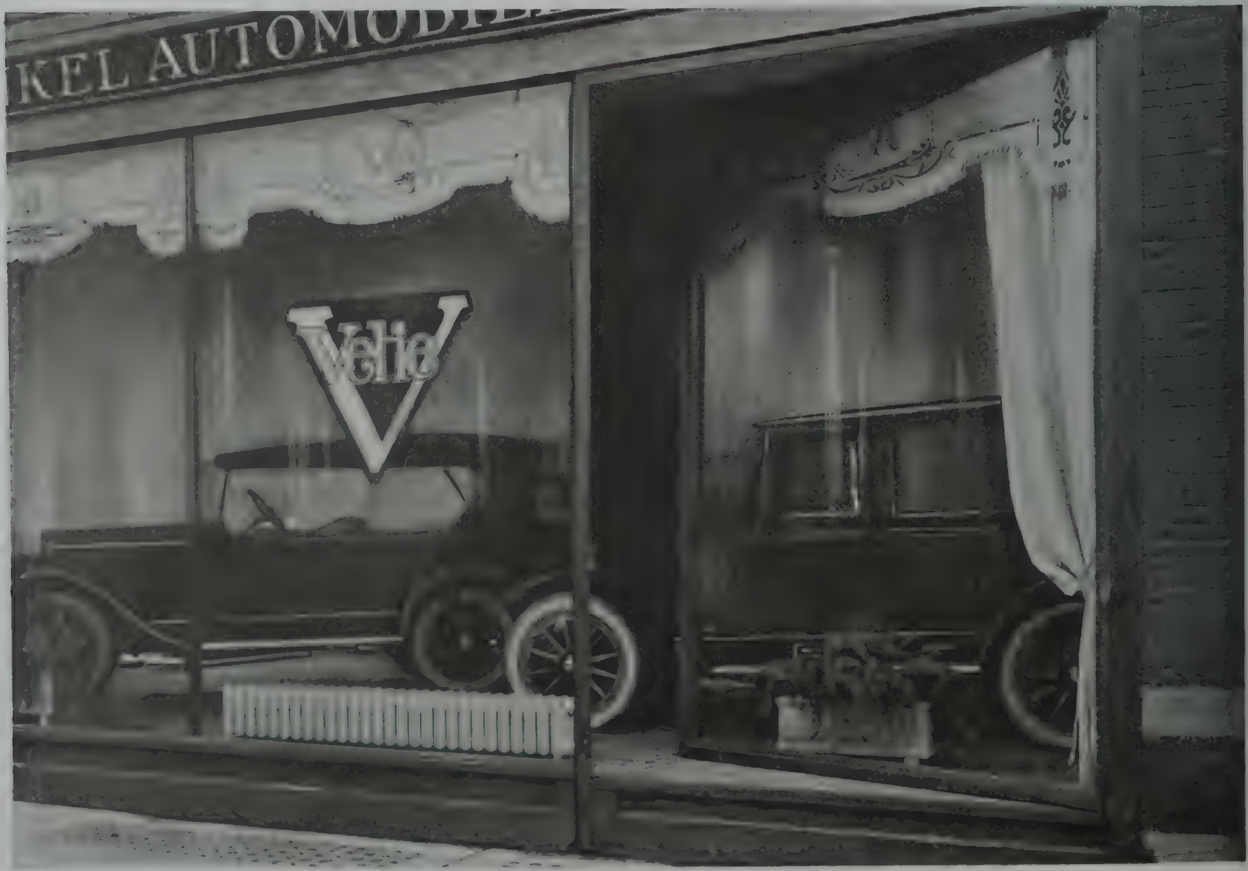


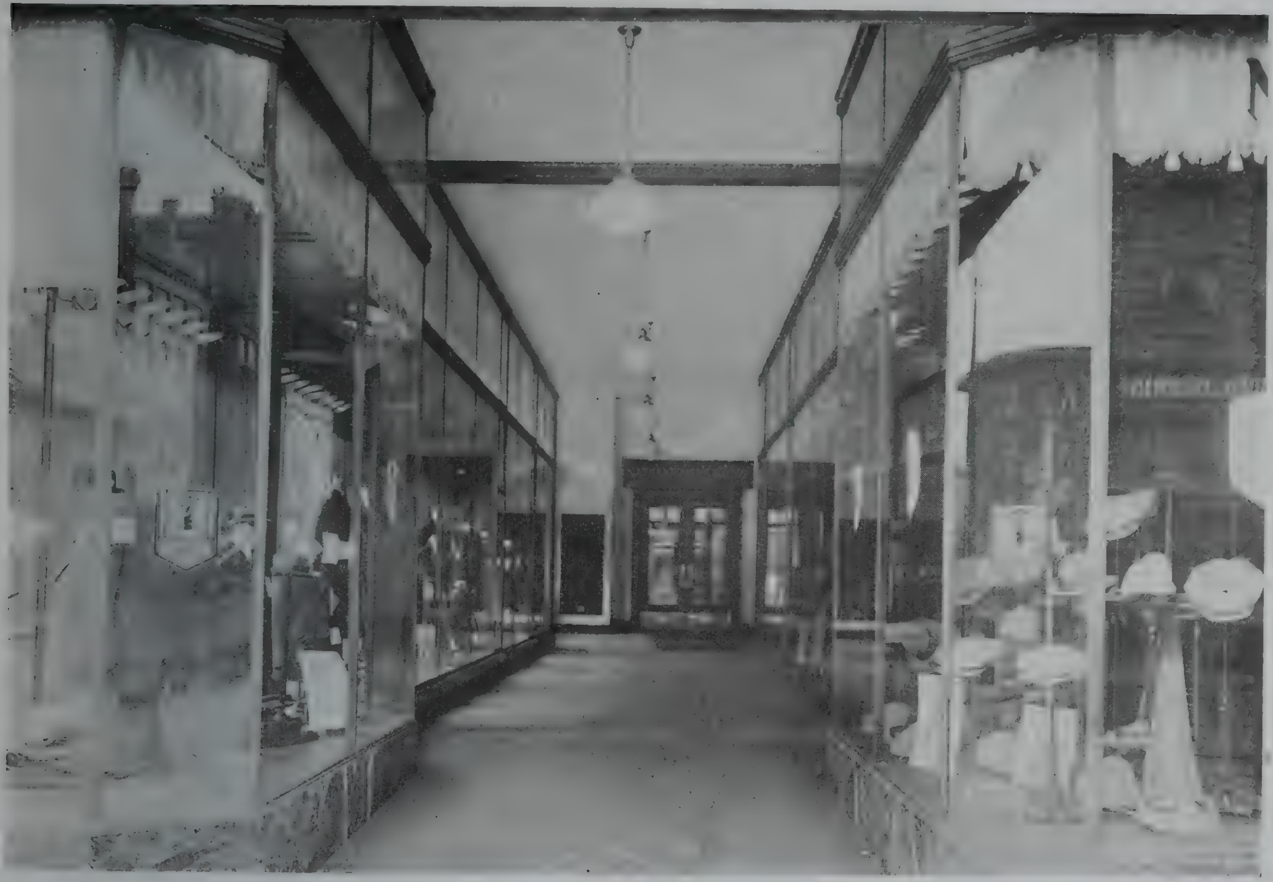
Island Display Show Windows for Wide and Narrow Frontages



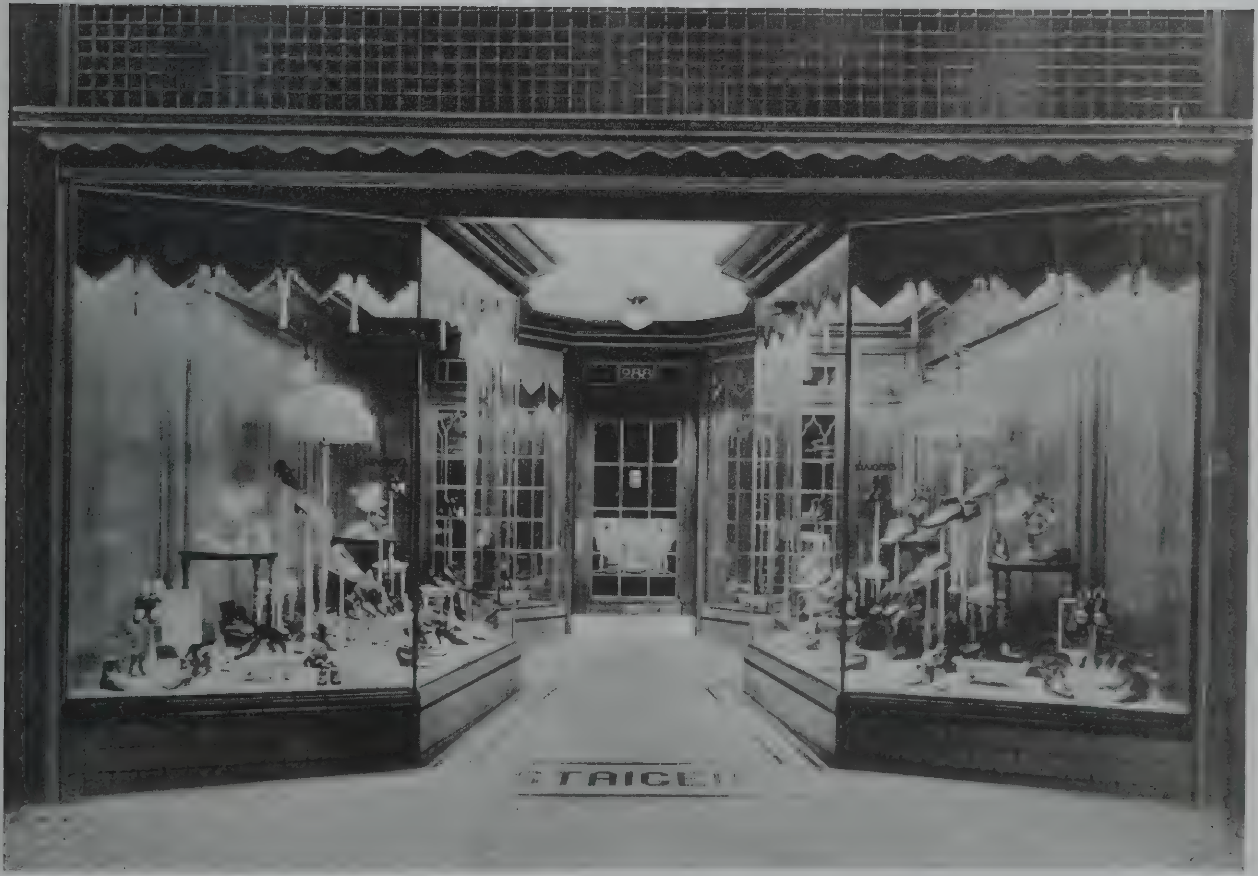


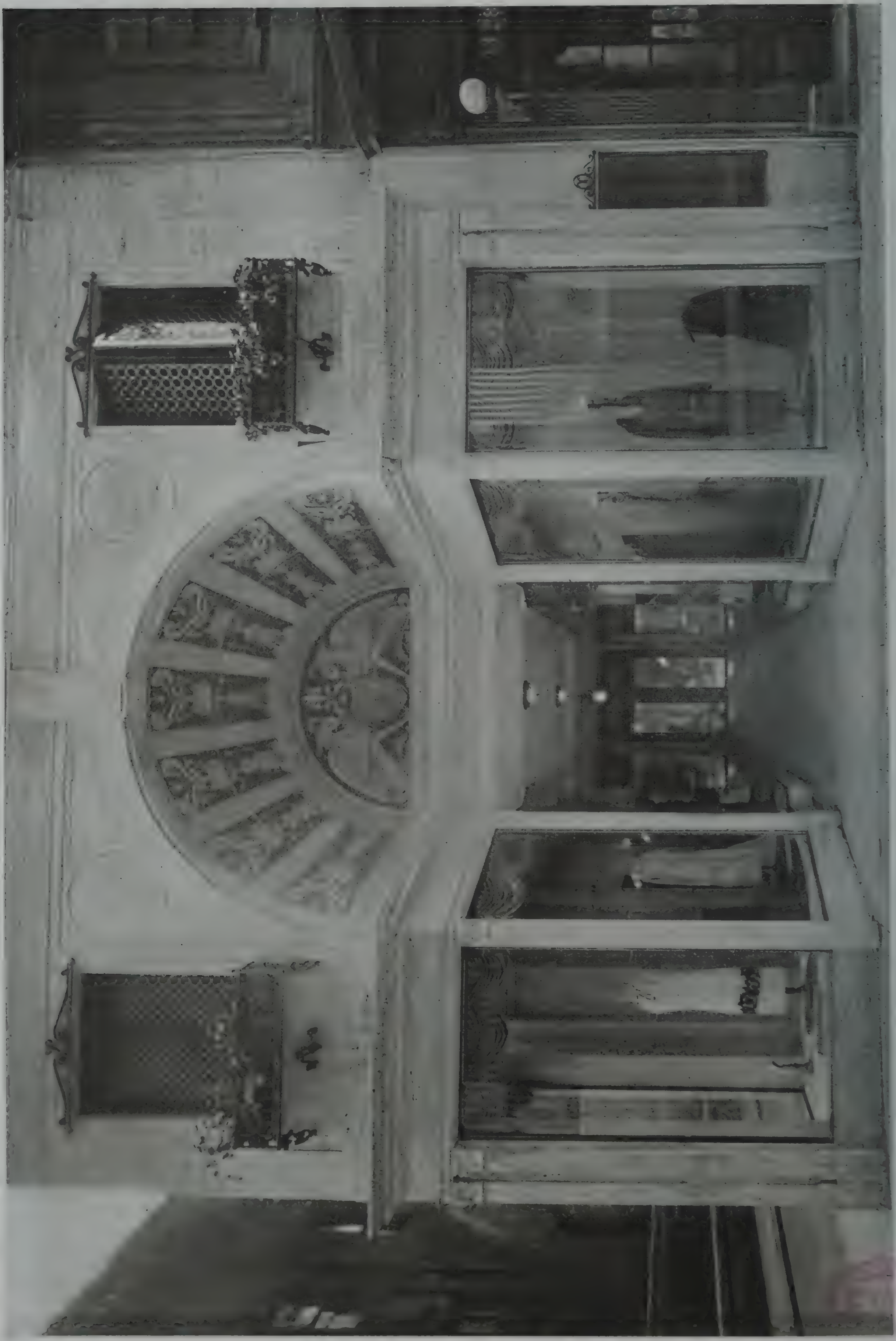
Metal Mouldings Safeguard the Setting of Large Sheets of Plate Glass





Deeply Arcaded Shop Fronts Provide for Extensive Window Displays





The Blum Store, Philadelphia

Frank E. Hahn and S. Brian Baylinson, Architects

Photo. Paul Menzin Studios

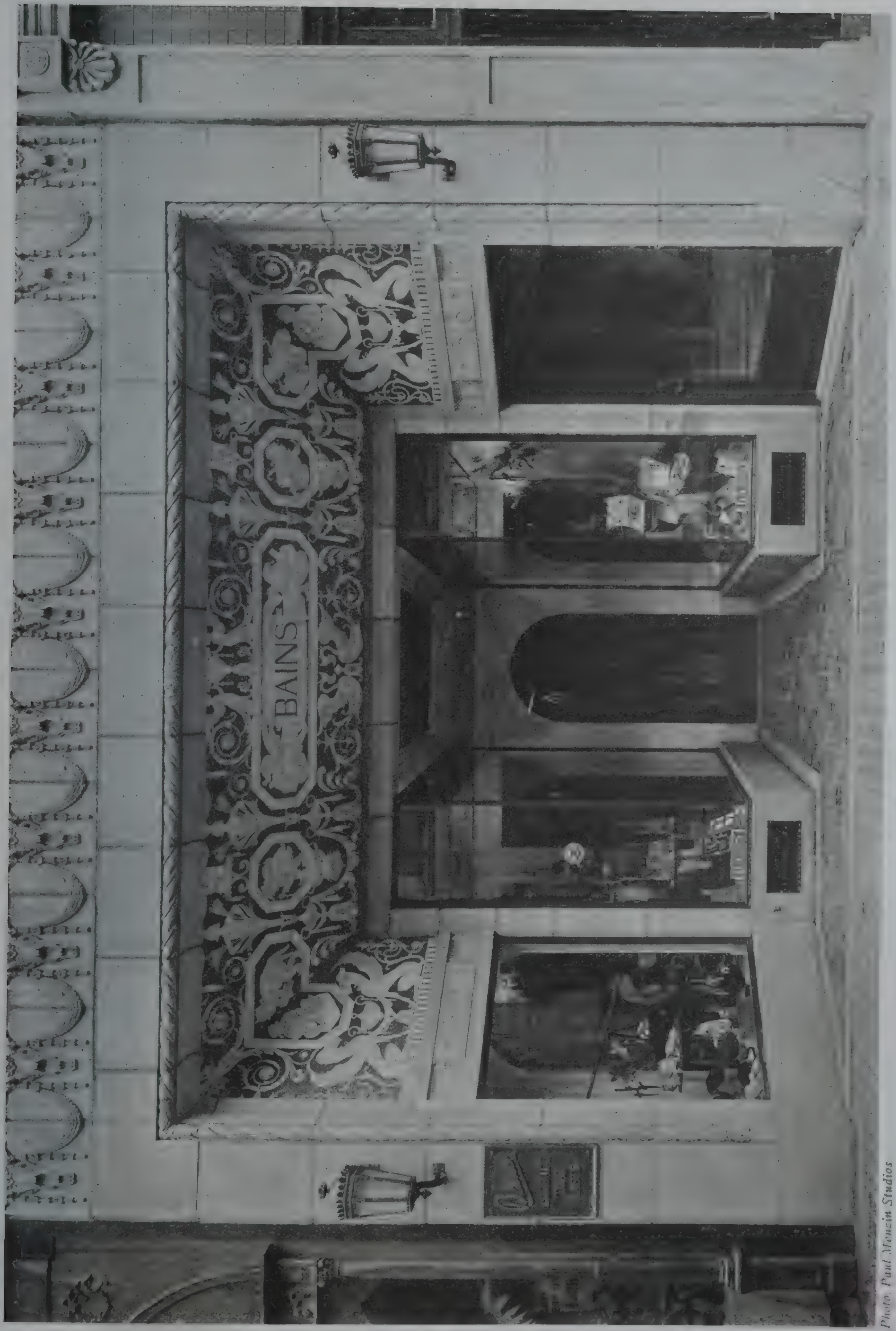
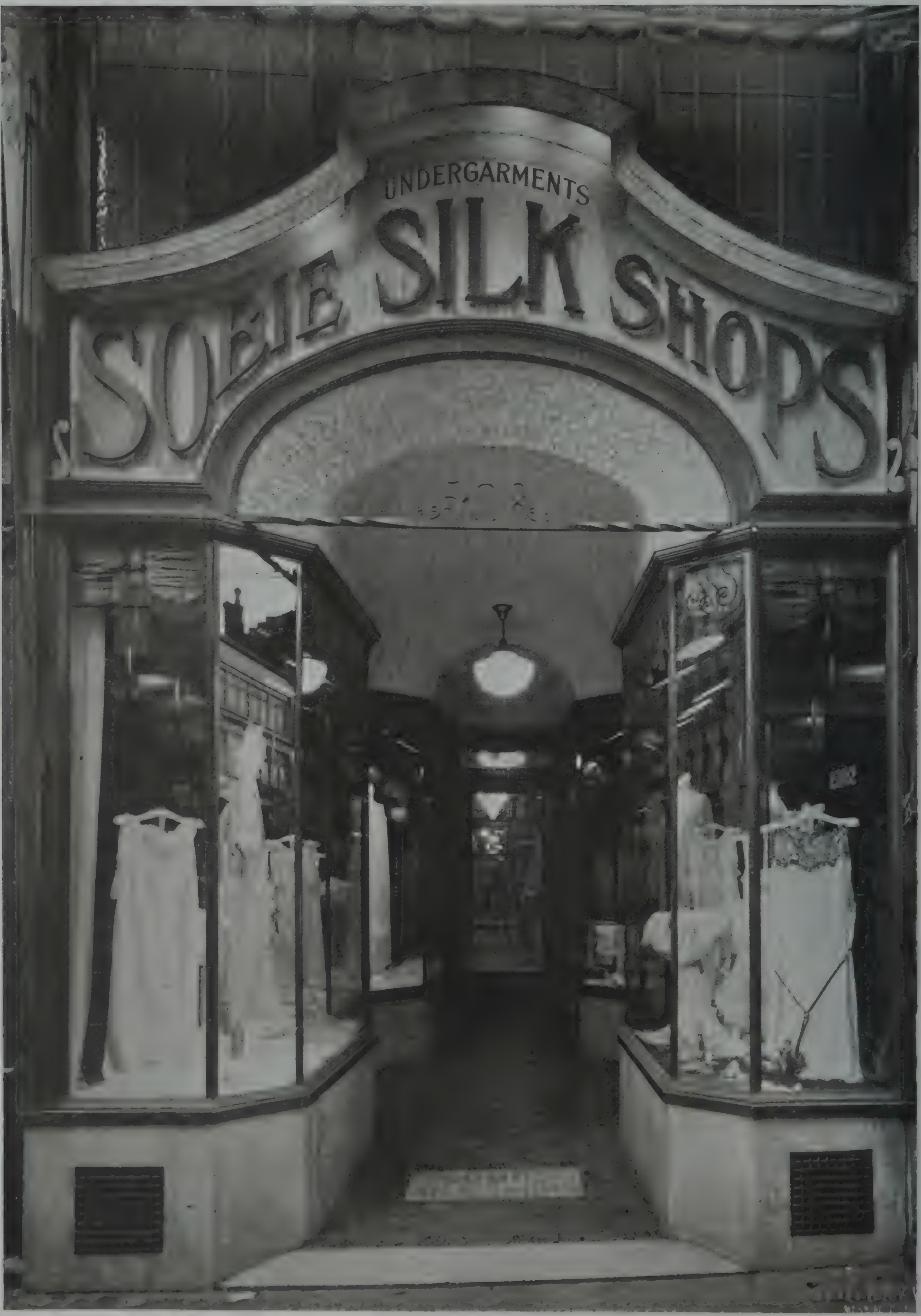


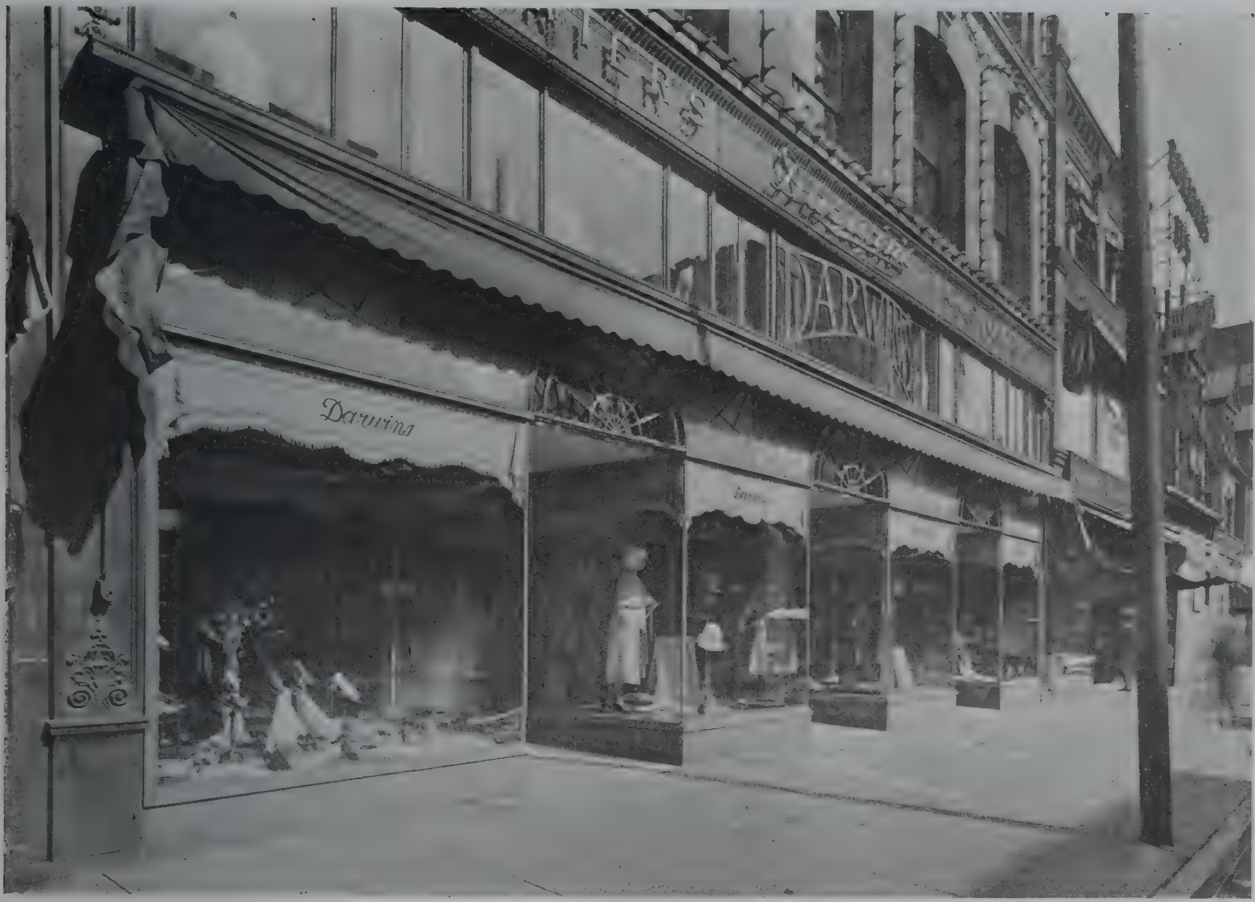
Photo. Paul Menzin Studios

Bains' Luggage Shop, Philadelphia

Frank E. Hahn and S. Brian Baylinson, Architects



A Shop in Montreal. Huntly Ward Davis, Architect



The Shop of Darwins, Ltd., Montreal; Huntly Ward Davis, Architect

TWO SHOPS IN MONTREAL

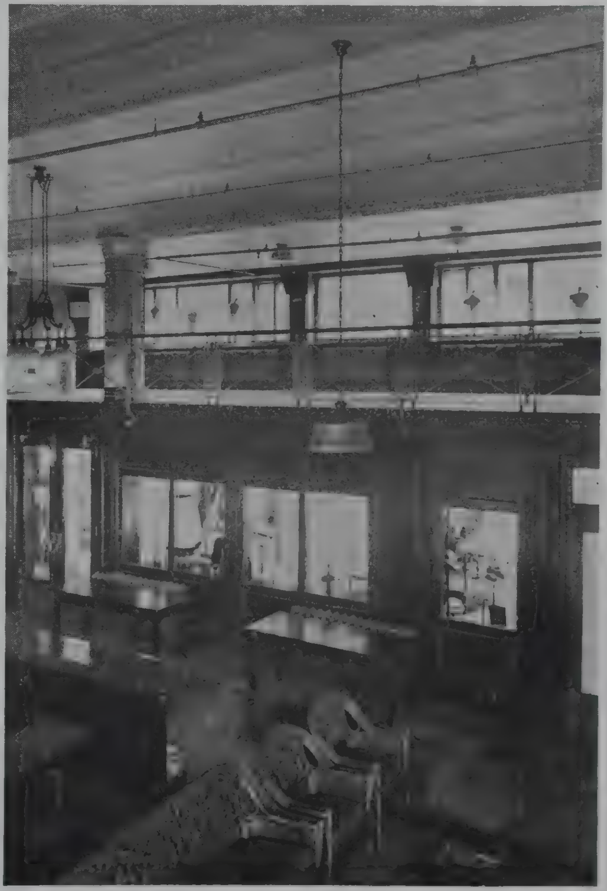
HUNTLY WARD DAVIS, Architect

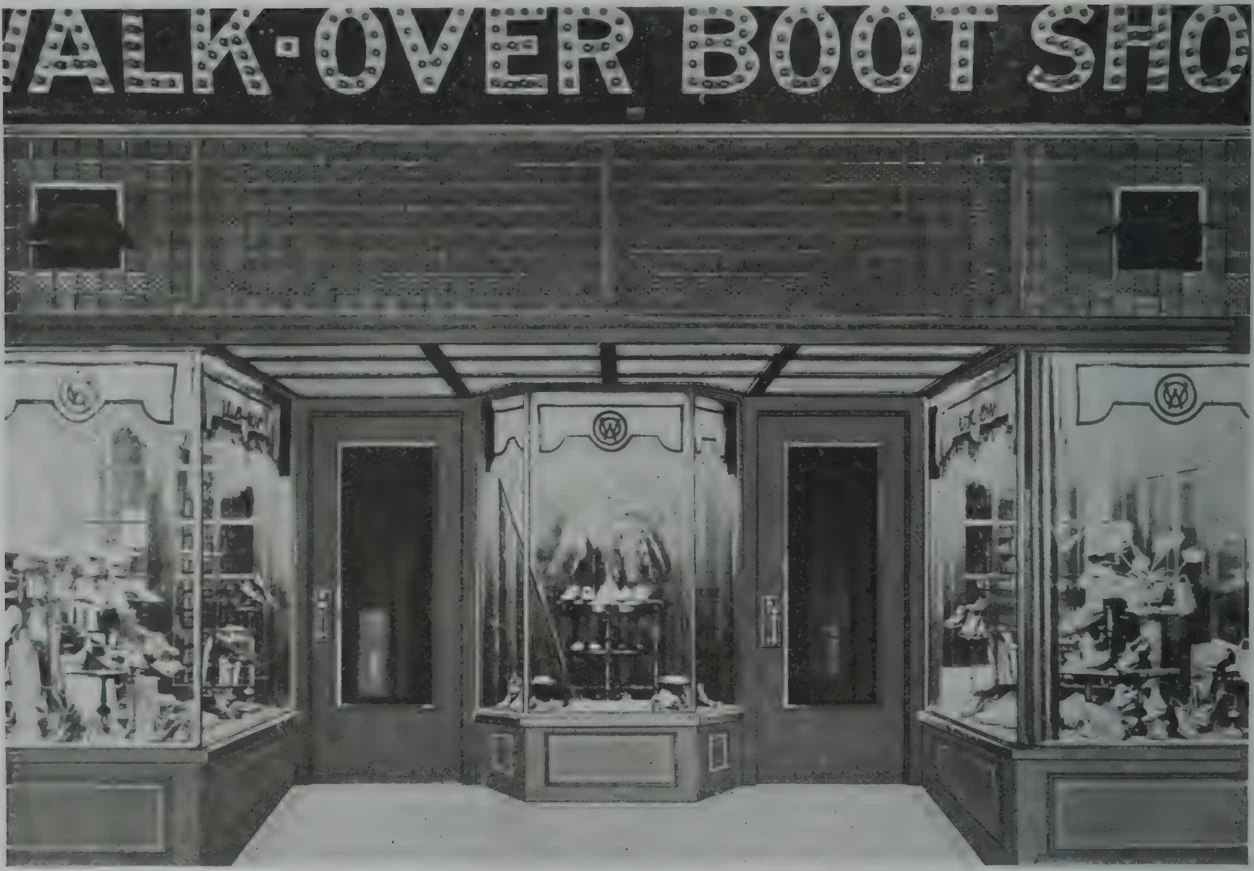
THE interesting examples of shop front design in metal and glass shown on this and the opposite page indicate problems which very often arise in the field of small shop and store planning.

The problem of the Darwins store was to provide a mezzanine giving valuable floor space (see illustration at right) without making the deep entrance appear low. The outer bulkhead of the mezzanine was kept about 15 inches from the street line, and formed the upper part of the window with muffled glass in metal astragals. Over the doorways were placed semi-circular mirrors, giving the effect of a coved ceiling behind the semi-circular grilles. The apparent height of the ceiling over the windows and entrance, only 9 feet, 2 inches from the floor, was increased by painting white.

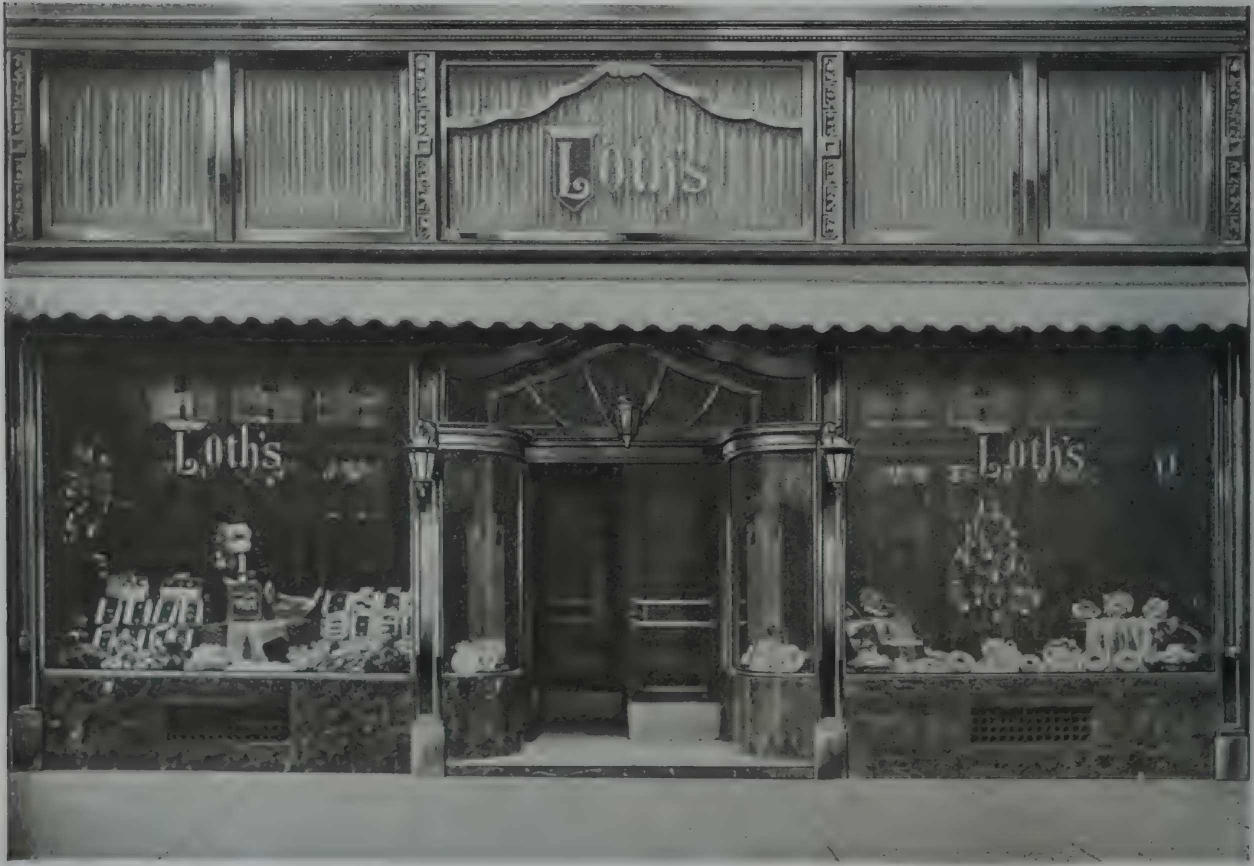
Ordinarily the solid background of a show window completely shuts off the daylight from the interior of a shop. In this instance the plan makes possible the entrance of daylight, besides making the window displays visible from inside as well as out.

In the Sobie Silk Shop there was a frontage of only 9 feet, 10 inches. A center entrance was provided, recessed 15 feet from the street line to the door, but a spacious effect was obtained by making this entrance 4 feet, 5 inches wide at the front and 3 feet, 1 inch at the back, narrowing gradually.

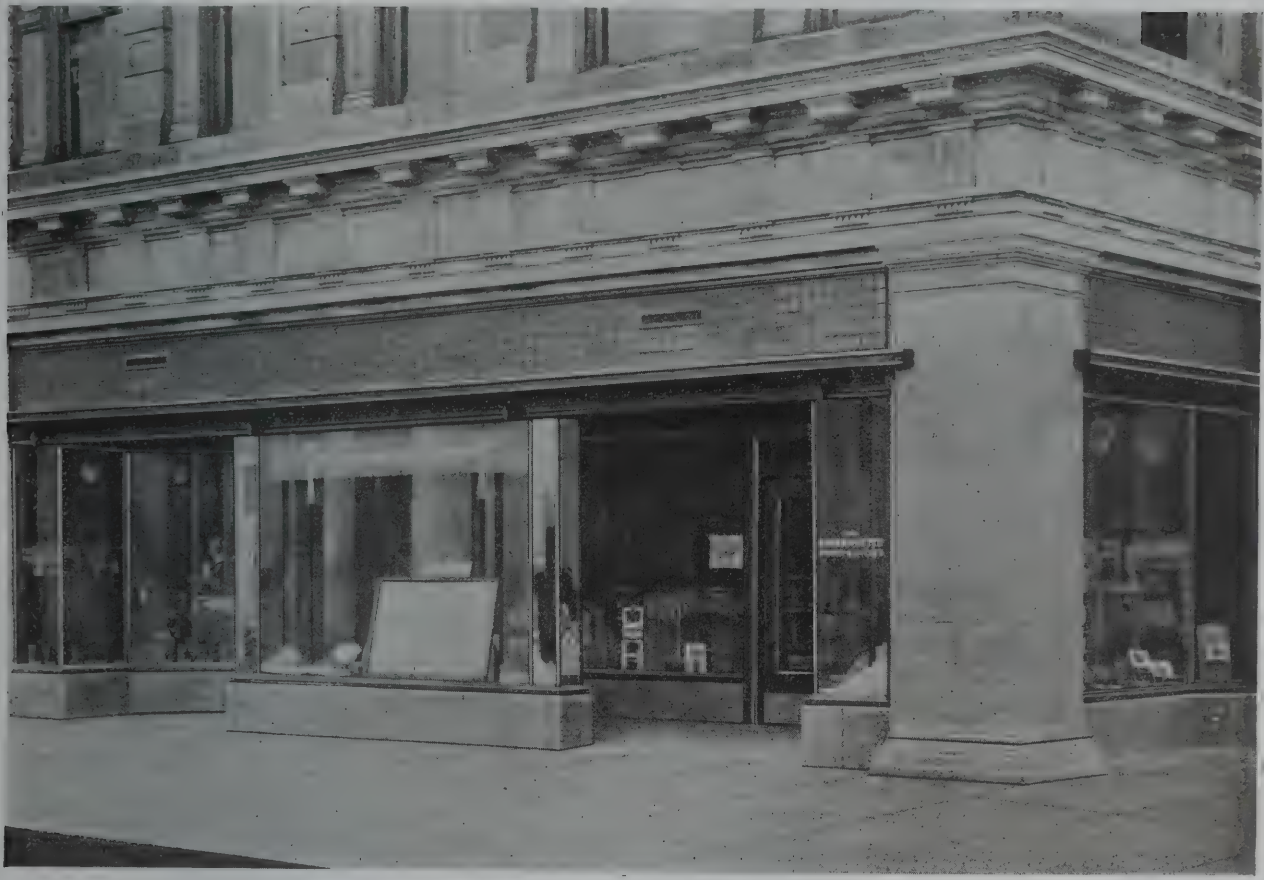




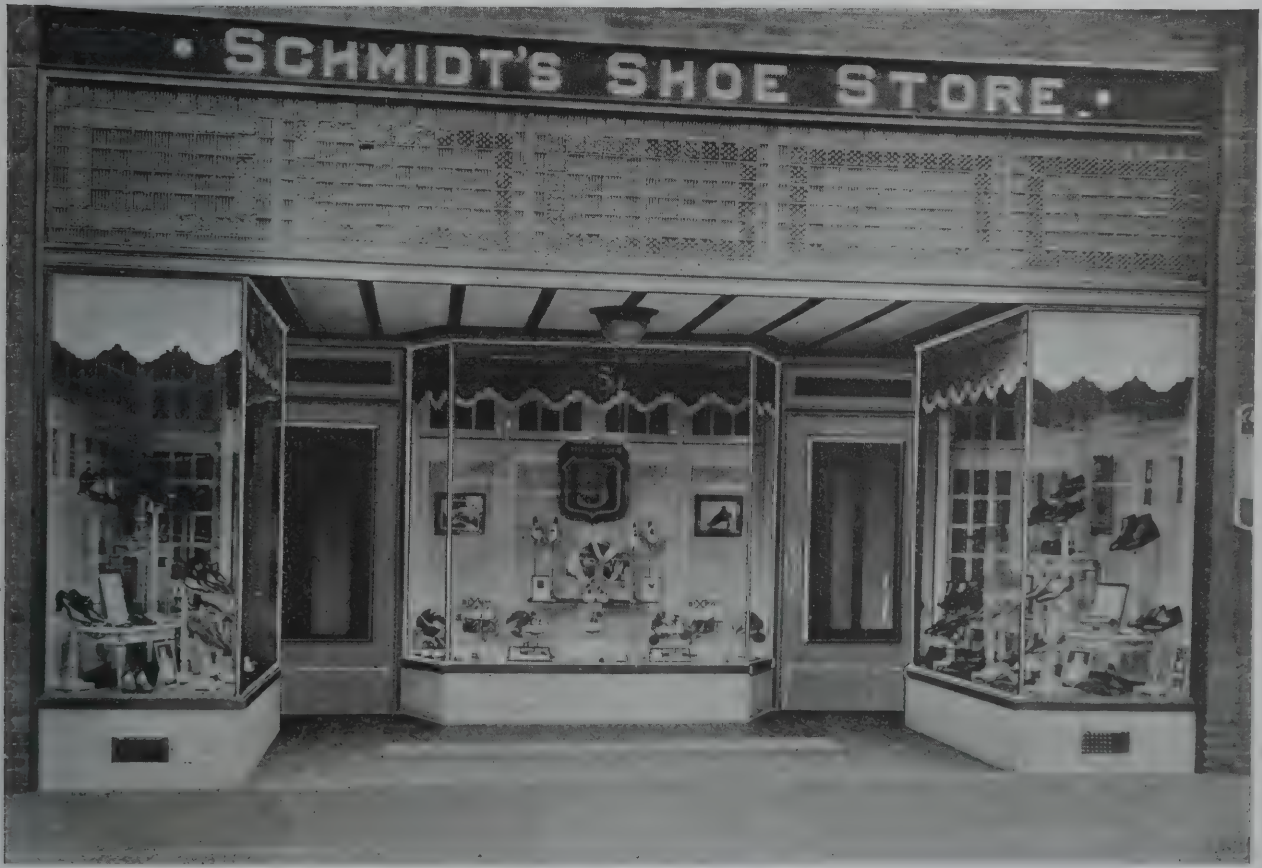
Shop with Full Display and Double Entrance, Madison, Wis.



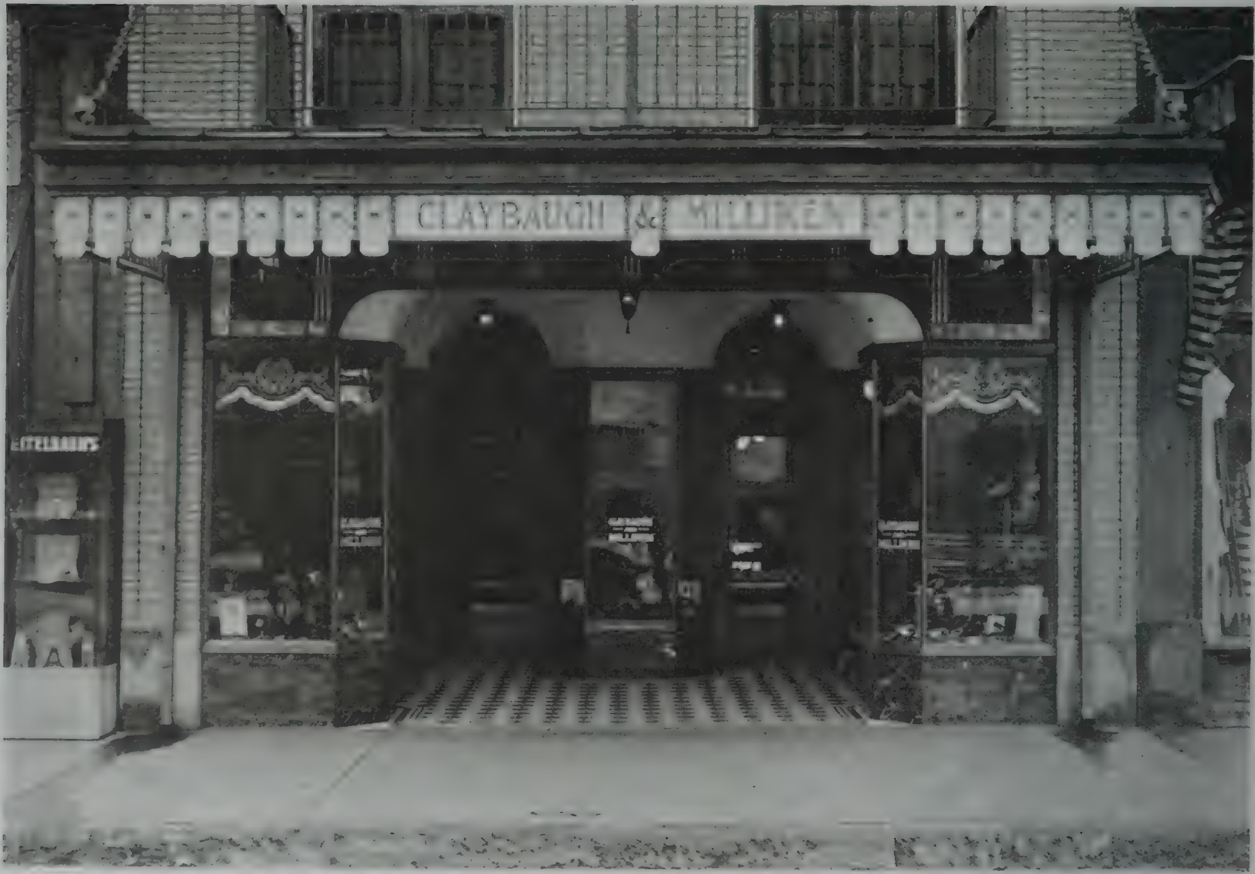
Candy Shop, St. Louis. Preston J. Bradshaw, Architect



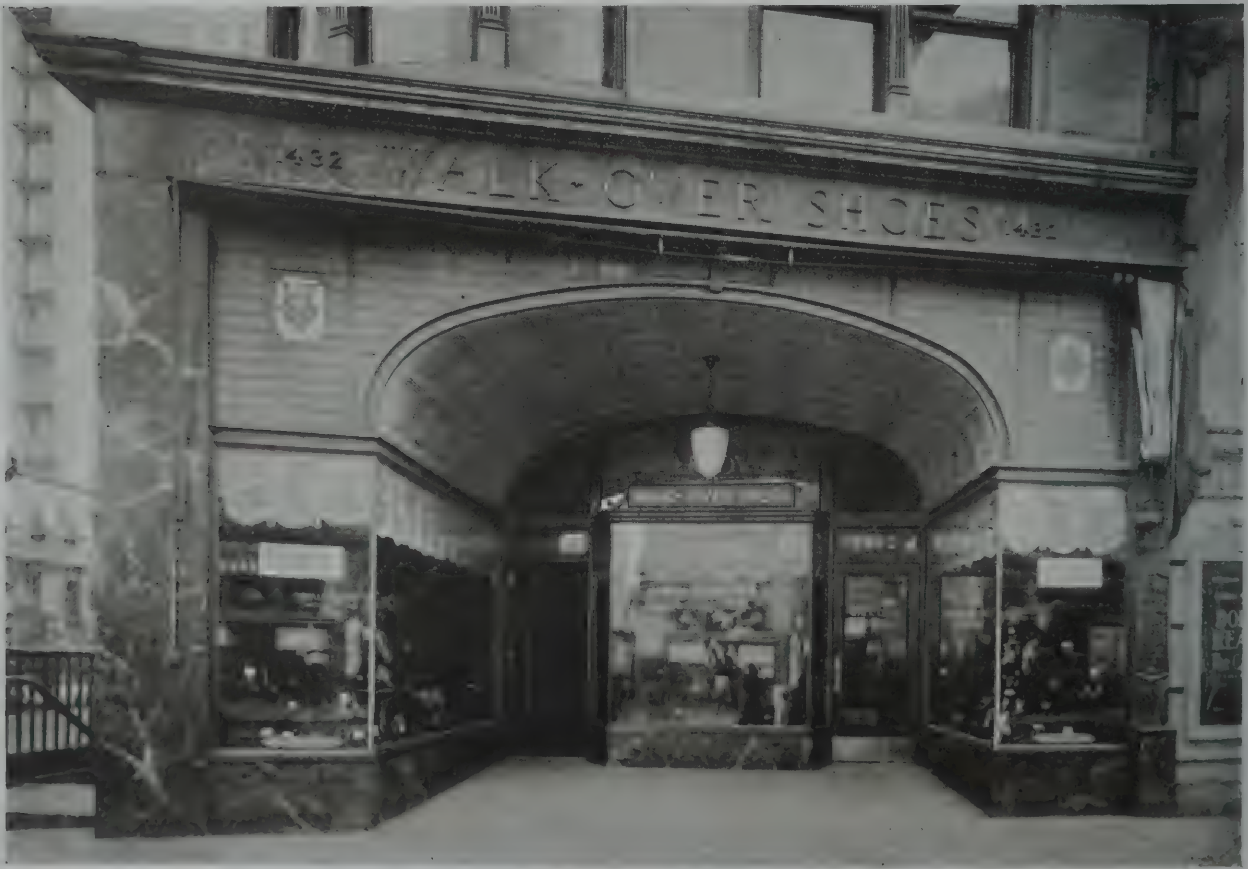
A Planning Method for Increasing Corner Display

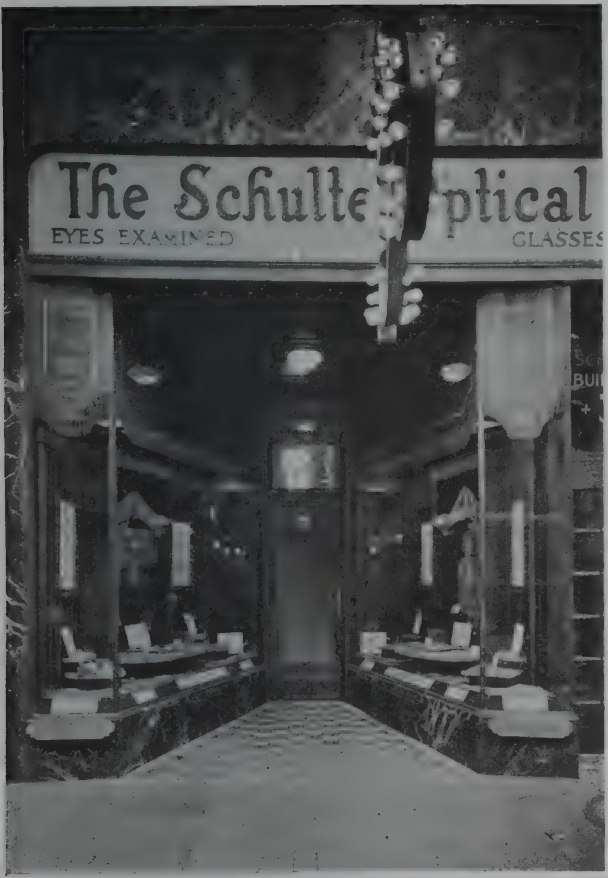


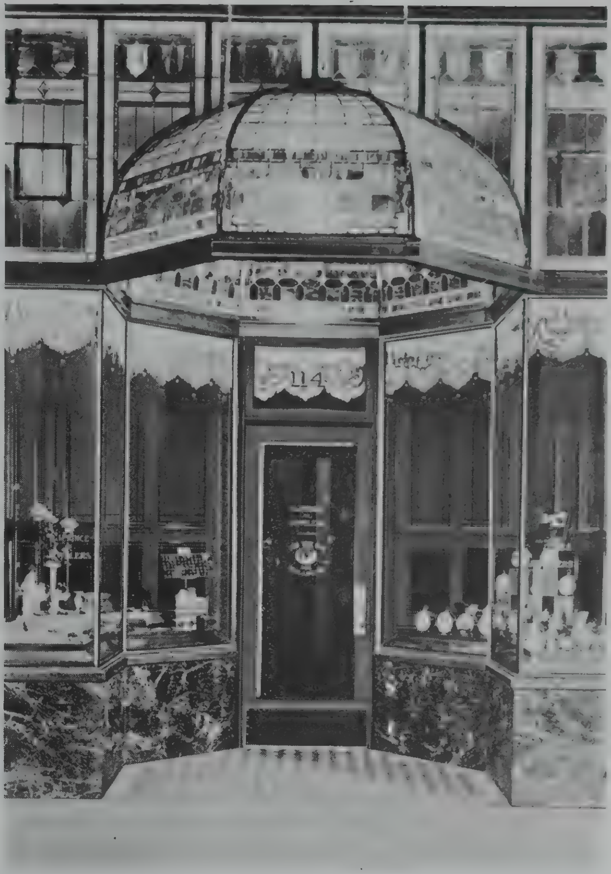
A Treatment Where Two Entrances Are Required



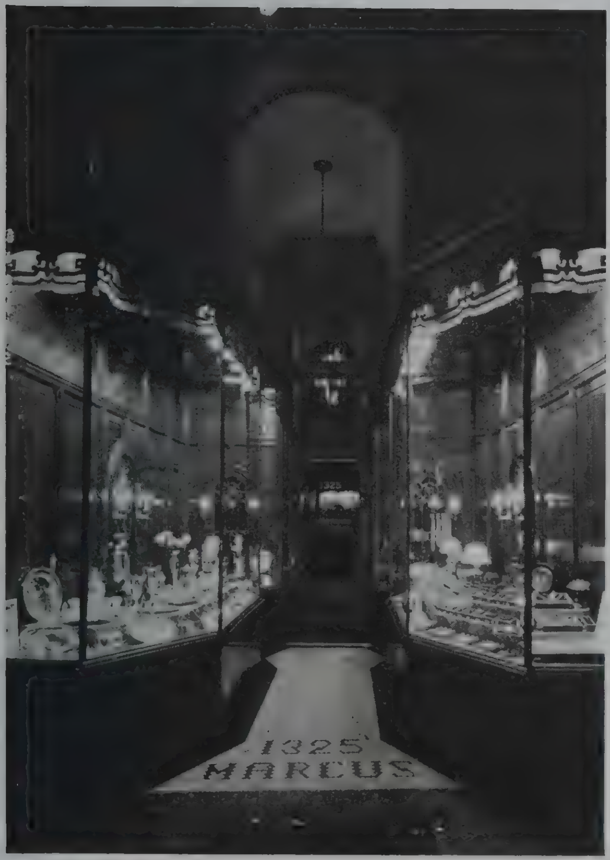
Recessed Shop Fronts, Each with Two Entrances

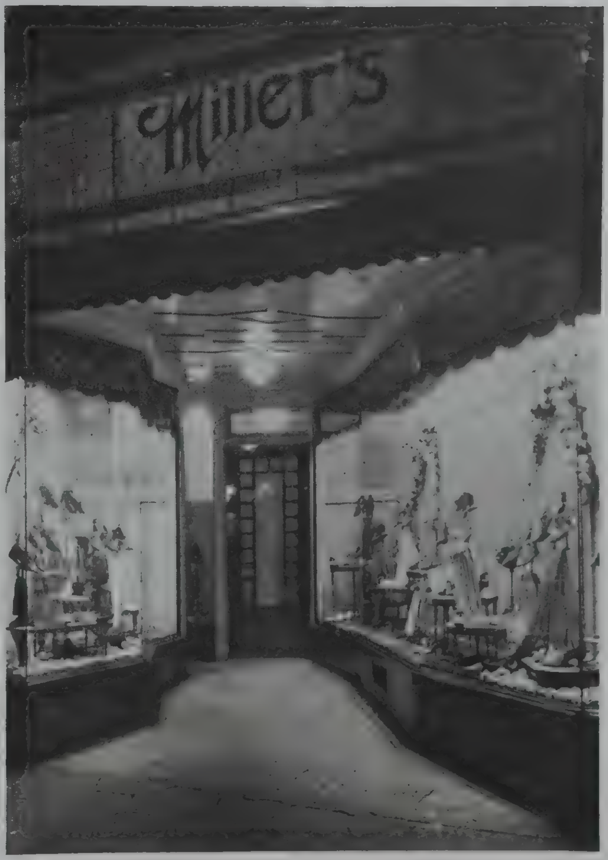


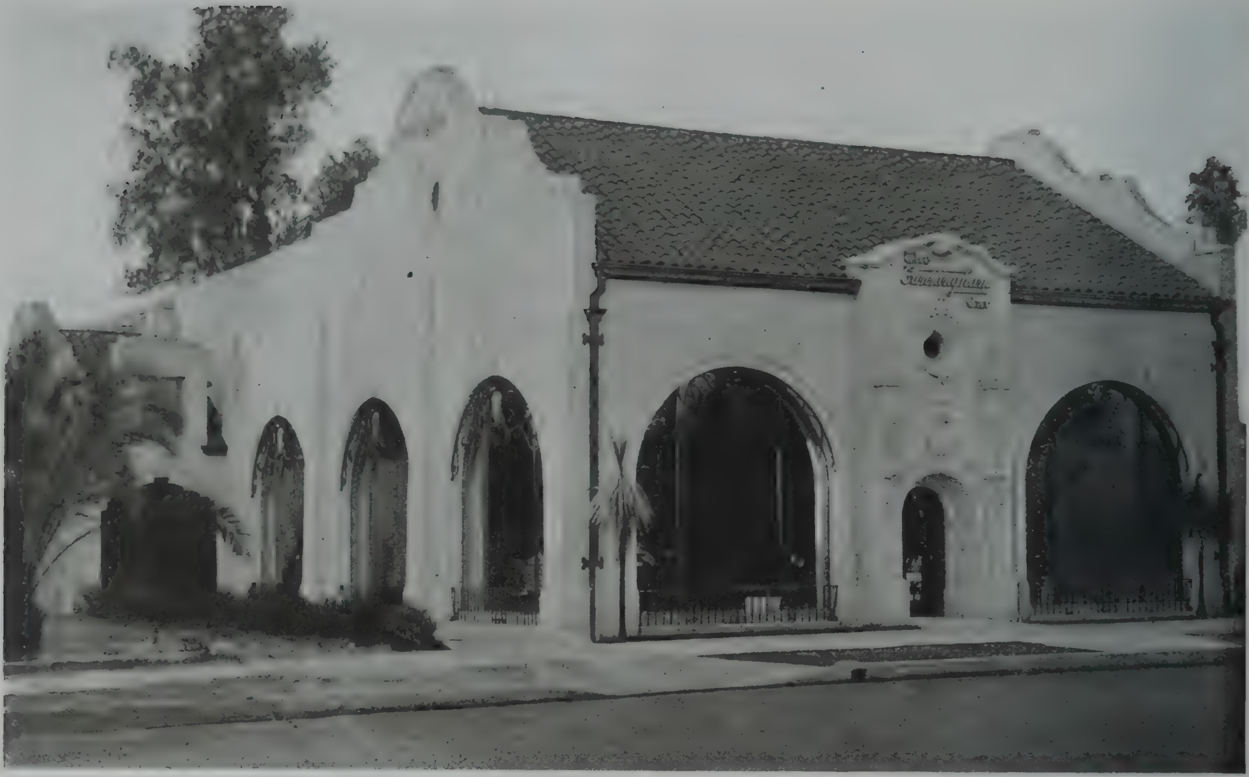




Methods of Extending Display Frontages on Narrow Lots







Cunningham Showroom, Los Angeles; Foss Designing Co., Architects

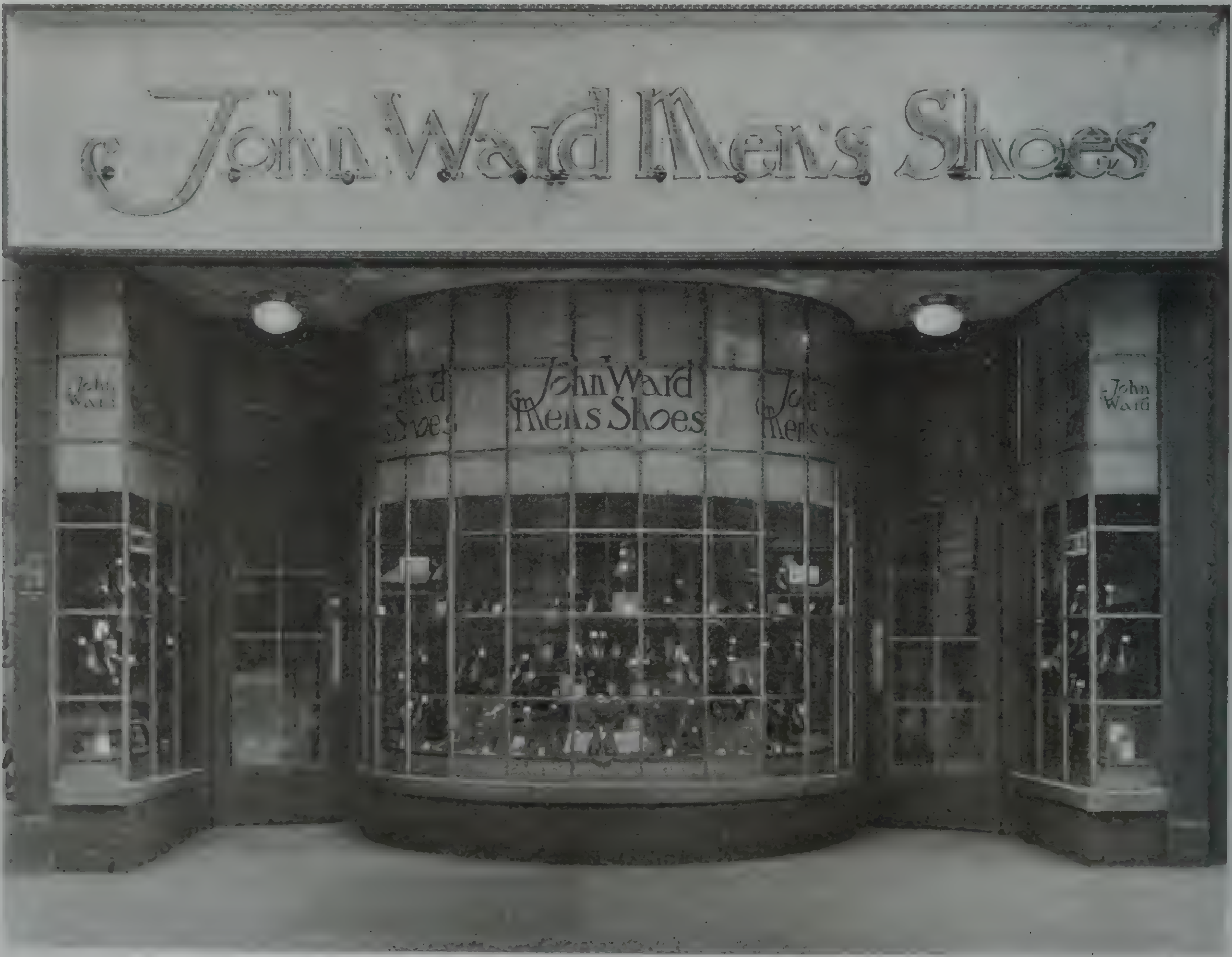


Photo. Sigurd Fischer

An Unusual Shop Front on East 42nd Street, New York
Richard Haviland Smythe, Architect

INTERIOR ARCHITECTURE

Napoleon's Bedroom at Compiegne

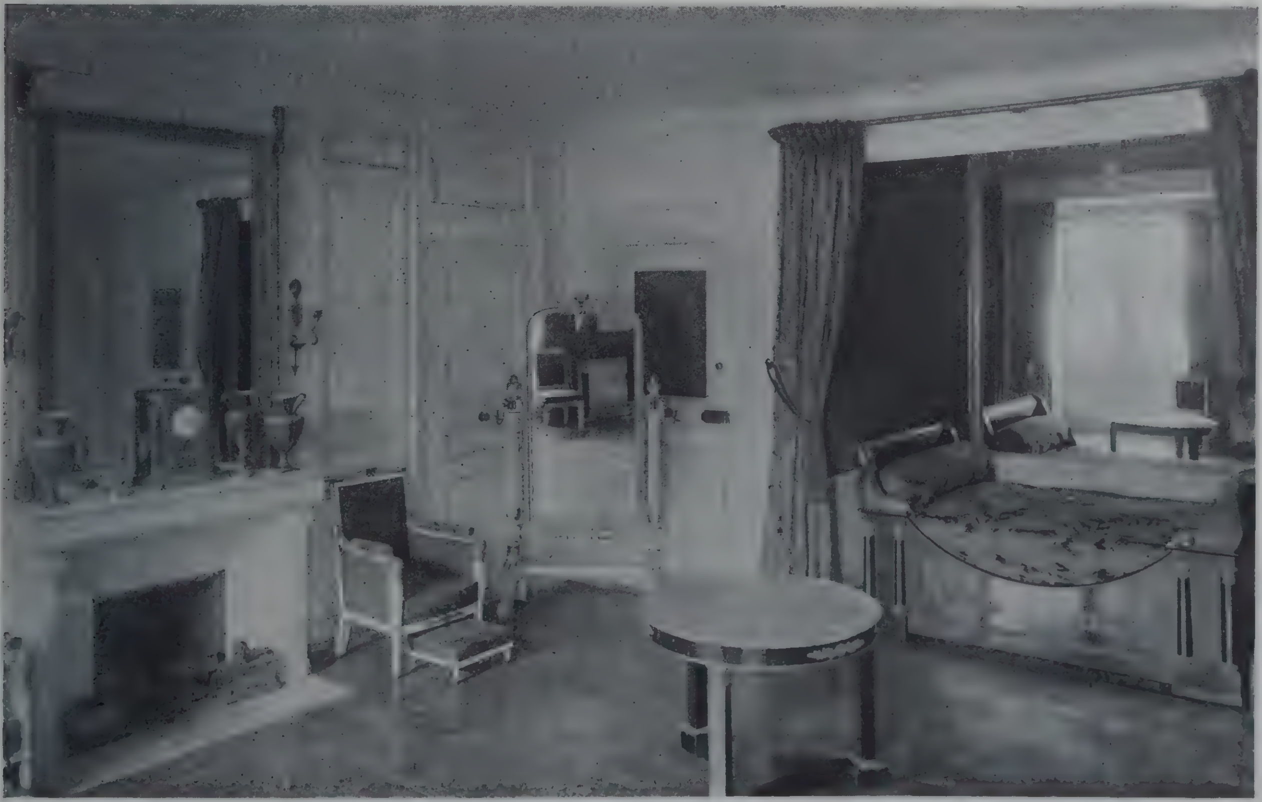
By C. HAMILTON PRESTON

THE Palace of Compiegne, in which is found the subject of these pages, is situated about 60 miles from Paris, and from earliest times it vied with Versailles and Fontainebleau as a favorite residence of the various monarchs of France. The present palace was designed and built by the renowned Gabriel, under Louis XV, and the exterior is recognized immediately as the work of this master. In many details it recalls his two graceful palaces in the Place de la Concorde, in Paris.

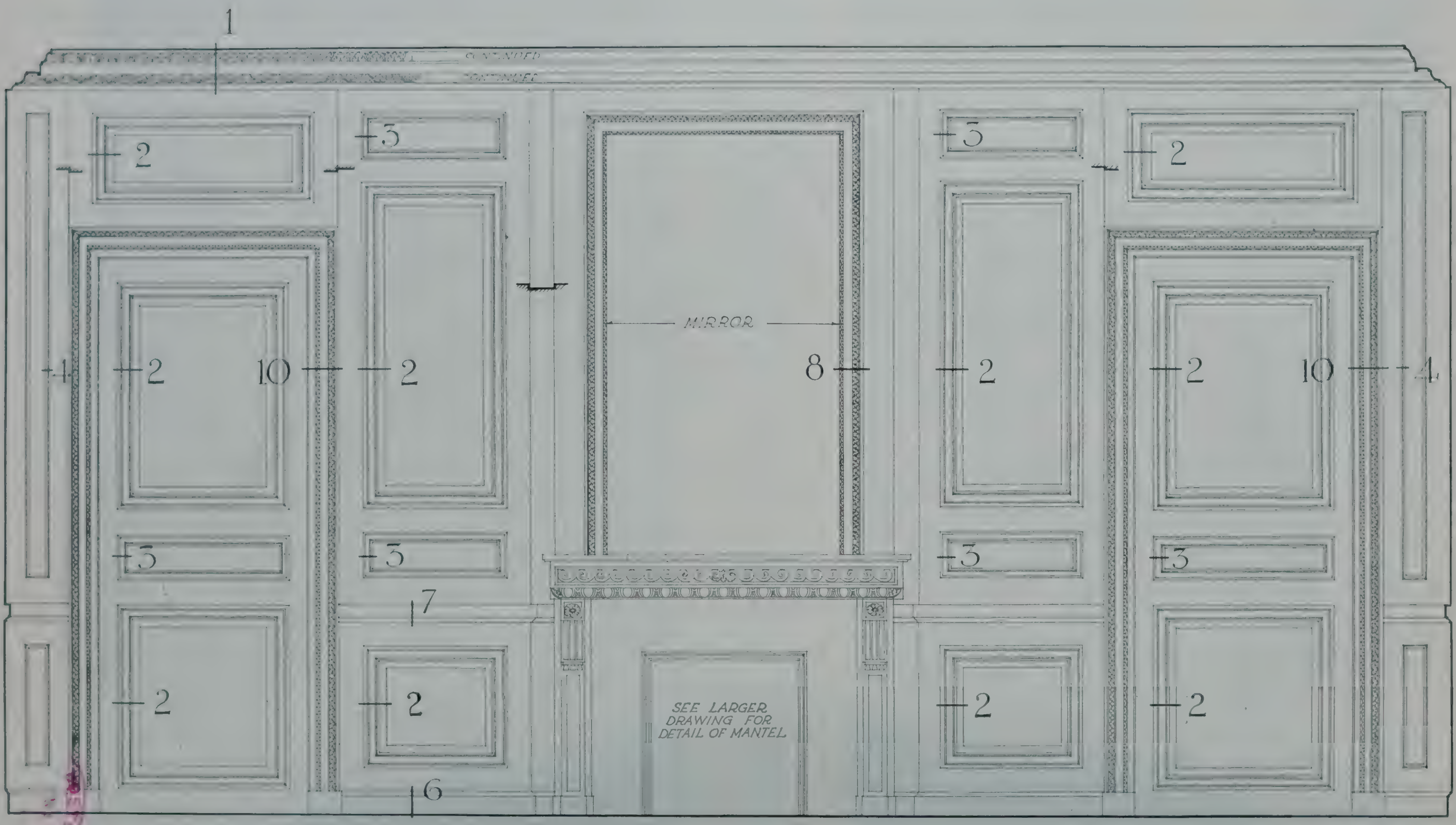
The plan of the Palace of Compiegne is unusual, triangular in shape, and most skillfully worked out. The entrance presents a screen colonnade, very dignified in proportions, the entrance itself being marked by a motif with a segmental pediment. The massive iron gates of this entrance are of beautiful design and workmanship, and the large rectangular forecourt is impressive. On the entrance side the palace is three stories in height, while on the garden side it is of but two, formerly raised on a high stylobate.

Louis XVI fitted out a large suite of rooms on the garden side for Marie Antoinette, and the subject of these drawings is one of the intimate rooms of this suite; it is, in fact, the room next to the bedroom of the little Dauphin, which opened immediately into the boudoir of Marie Antoinette and the state apartments. It is a room of particular interest.

When Napoleon came to Compiegne he was charmed with this room and immediately selected it for his own bedroom, no changes being made in the architecture, but merely in the interior decorations. The room is spacious, but low and intimate. As regards design it is one of the loveliest of the smaller apartments. The mantel of pure white marble is exquisite in proportion and detail; it seemed to have been a favorite, and was reproduced in several other rooms in various colored marbles. On either side of the mantel are perfectly balanced doors and panels, admirably proportioned and very pleasing in effect. Above the mantel there is a superb mirror in a gold frame with interesting detail. The mouldings are bold and vigorous, and all the detail has that almost classic purity and refined dignity which seem peculiar to the Louis XVI work at Compiegne.



Napoleon's Bedroom at Compiegne, As It Appears Today

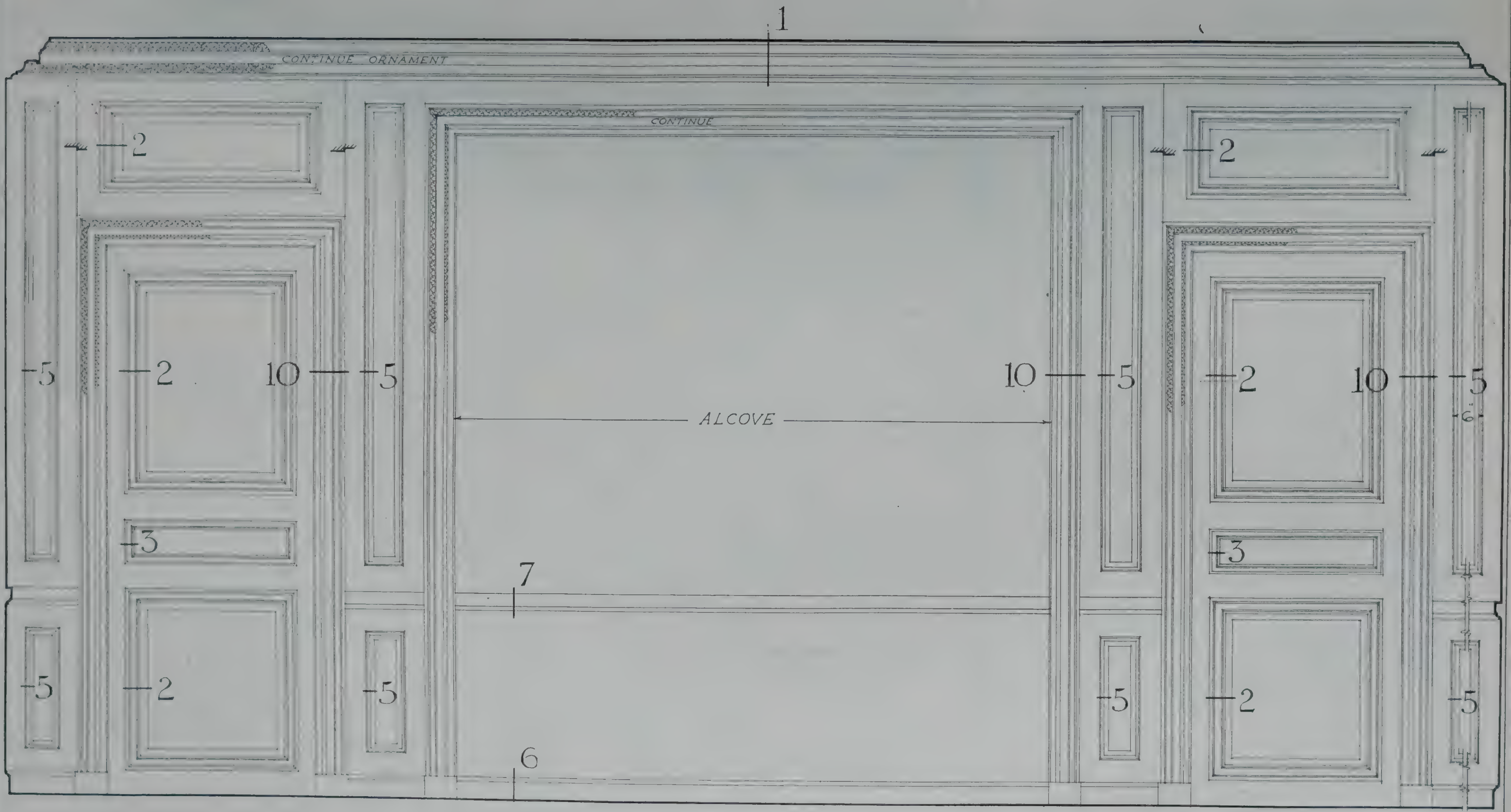


ELEVATION A~A

Scale $\frac{1}{2}''$ = 1 Foot

NAPOLEON'S BEDROOM

COMPIEGNE



ELEVATION B~B

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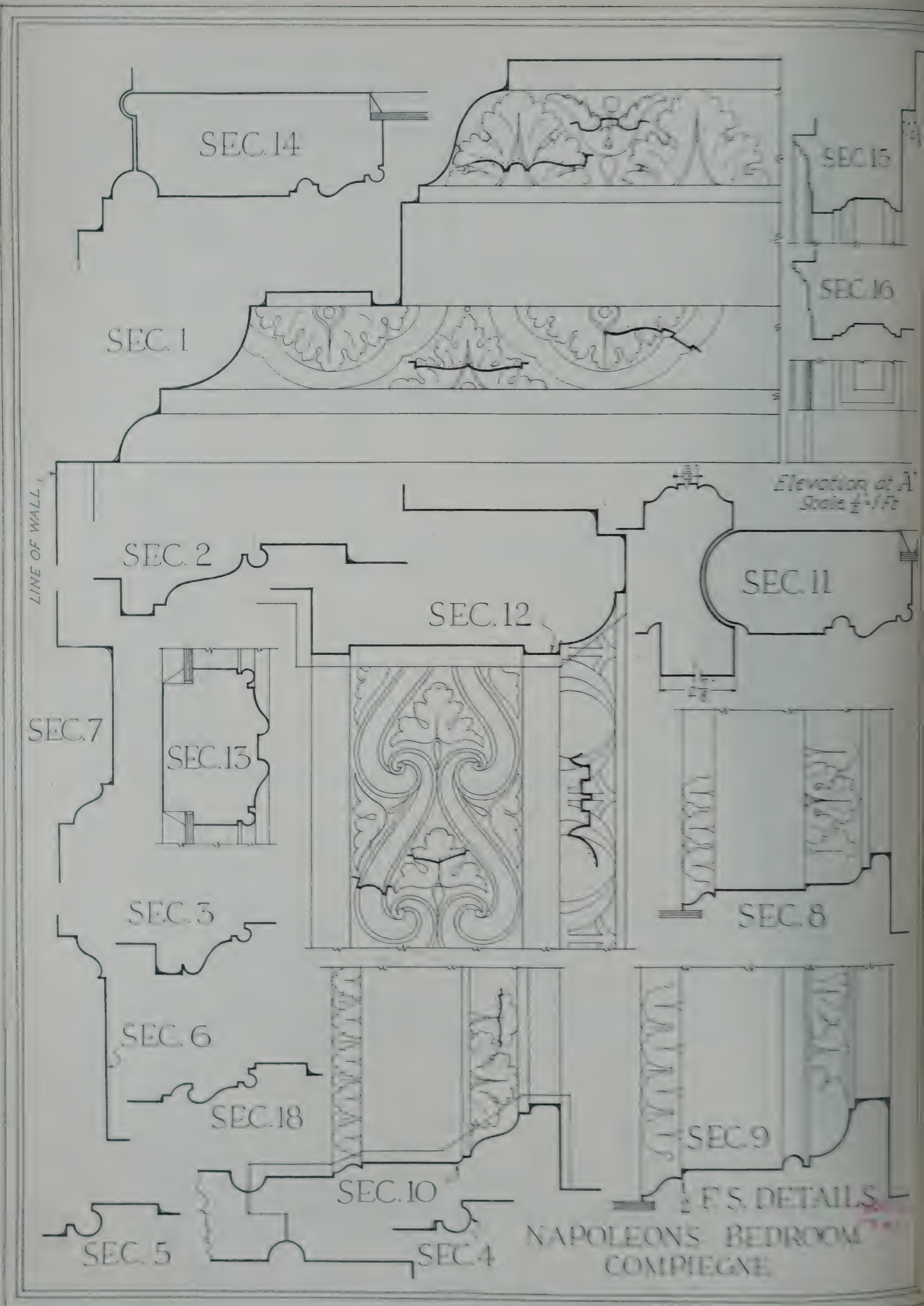
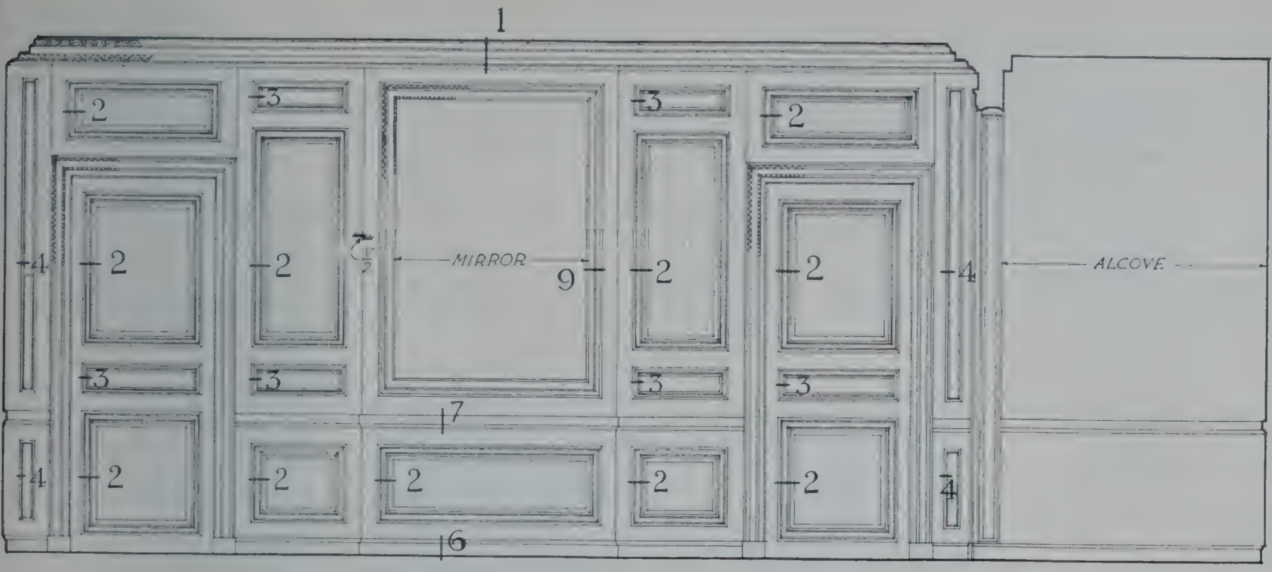
NAPOLEON'S BEDROOM

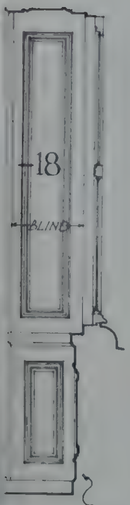
COMPIEGNE



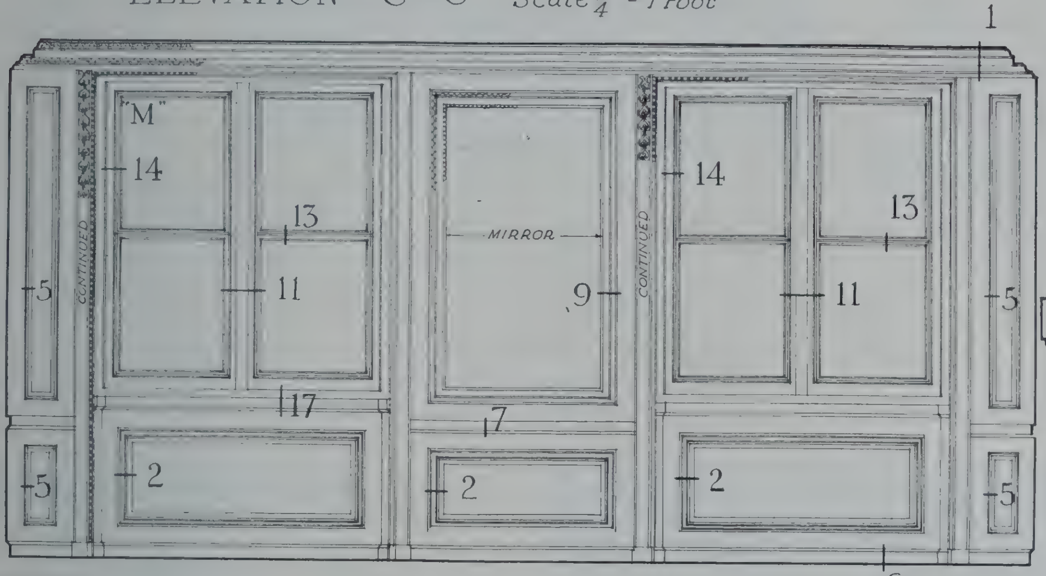
$\frac{1}{2}$ F. S. DETAILS
NAPOLEON'S BEDROOM
COMPIEGNE



ELEVATION C~C *Scale ¼" = 1 Foot*

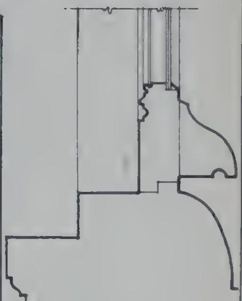


ECT. THRU WINDOW

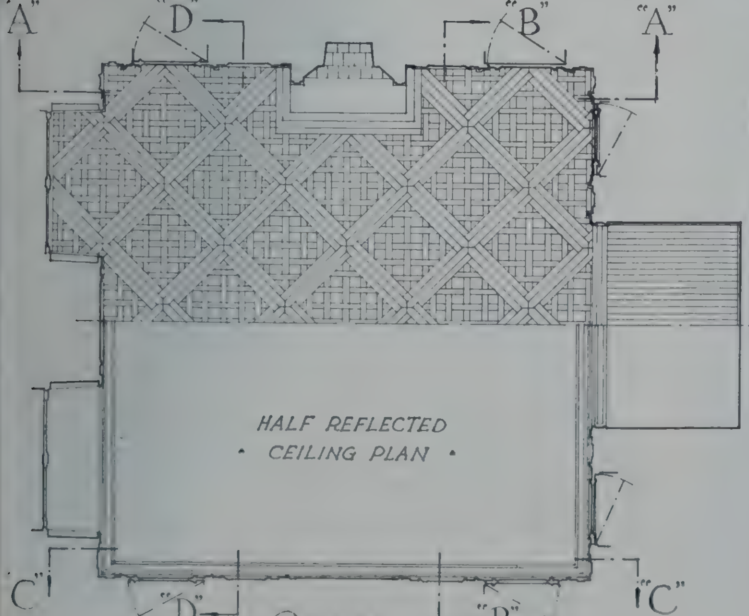


ELEVATION D~D

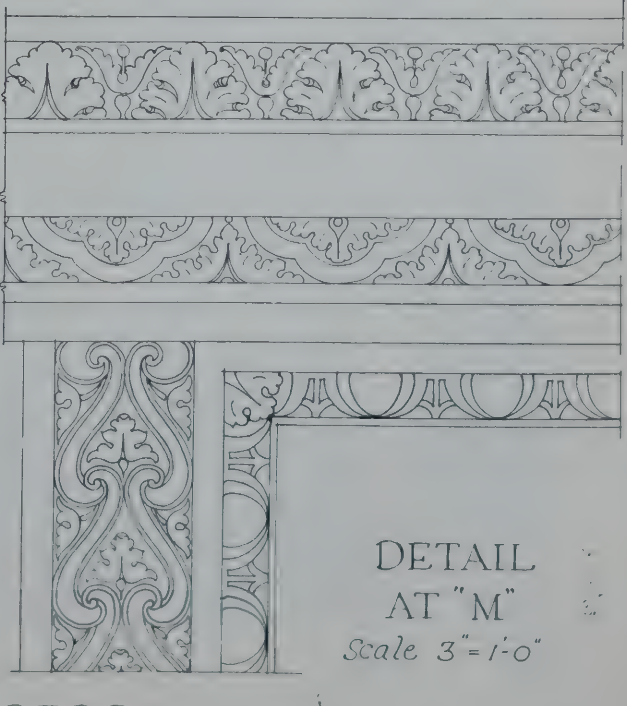
6



SEC. 17
Scale 1½" = 1 Ft

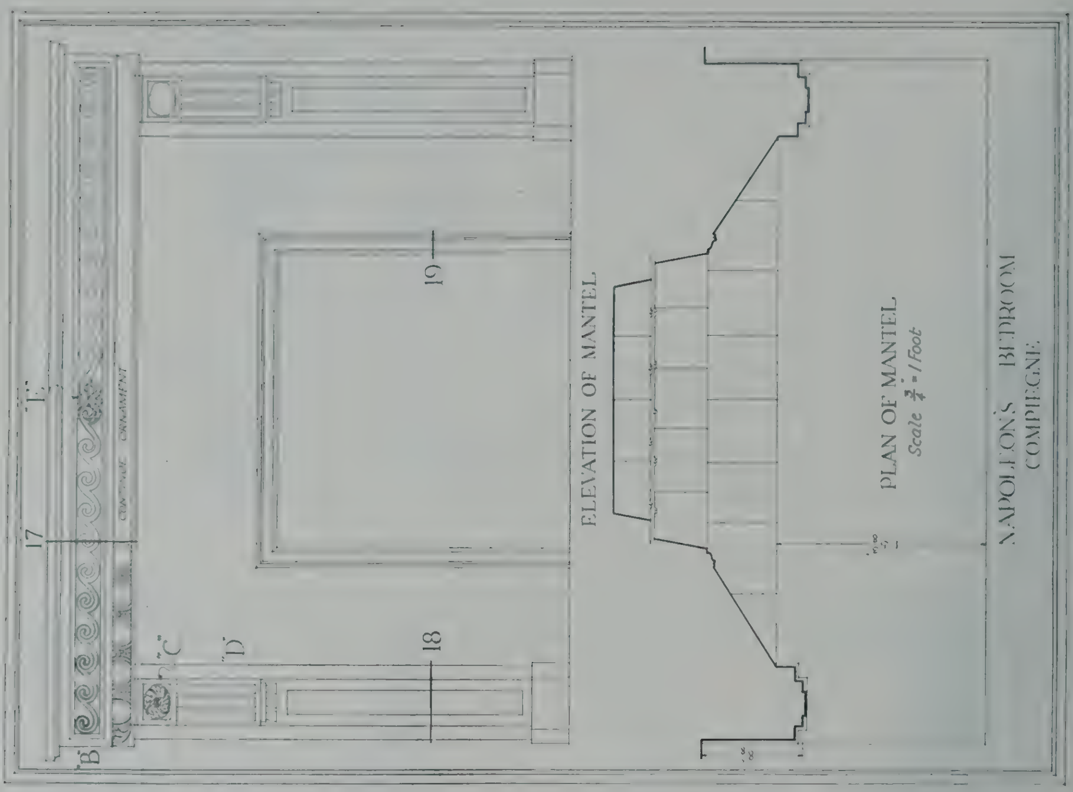


PLAN
Scale ⅛" = 1 Foot



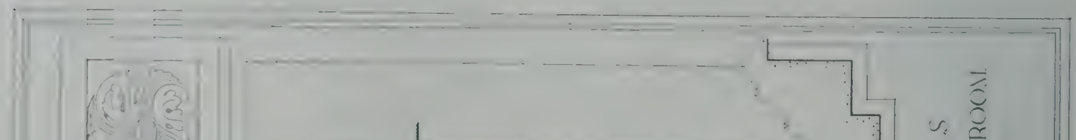
DETAIL
AT "M"
Scale 3" = 1'-0"

NAPOLEON'S BEDROOM
COMPIEGNE


ELEVATION OF MANTEL

PLAN OF MANTEL
Scale ¾" = 1 Foot

NAPOLEON'S BEDROOM
COMPIEGNE


F.S. DETAILS
NAPOLEON'S BEDROOM
COMPIEGNE

DETAIL AT "B" MANTEL

DECORATION & FURNITURE

Design and Craftsmanship in Early American Silver; Part II

By EDWIN J. HIPKISS

American Silver, Made about the Middle of the Eighteenth Century

IN the May issue of The Architectural Forum there were given some notes regarding the work of certain early American silversmiths. As was then pointed out, there existed a definite relationship between the design of furniture of the different colonial periods and the design of the domestic silver of the same eras, both furniture and silver exhibiting a constant tendency toward sophistication and refinement, with a consequent loss of virility. These notes are added to aid the student in the study of the work of colonial silversmiths, and the illustrations show the effect of constant development in the design of silver and furniture, and also in the interior architecture which supplied an appropriate background for the use of both.

Engraving. Many of the silversmiths engraved their work with a knowing sense of style. In many plates and bowls of the utmost simplicity it is interesting to see how the engraved inscription has been managed to form effective decoration. Some of the best of such engraving is upon different objects of silver bearing the marks of William Swan (1715-1774) and of Jacob Hurd (1702-1758). Nathaniel Hurd, the son of Jacob, was not only a very skillful worker of "plate," but also designed and engraved many bookplates now eagerly sought by collectors of Americana. One

American Chair in the Style of Chippendale

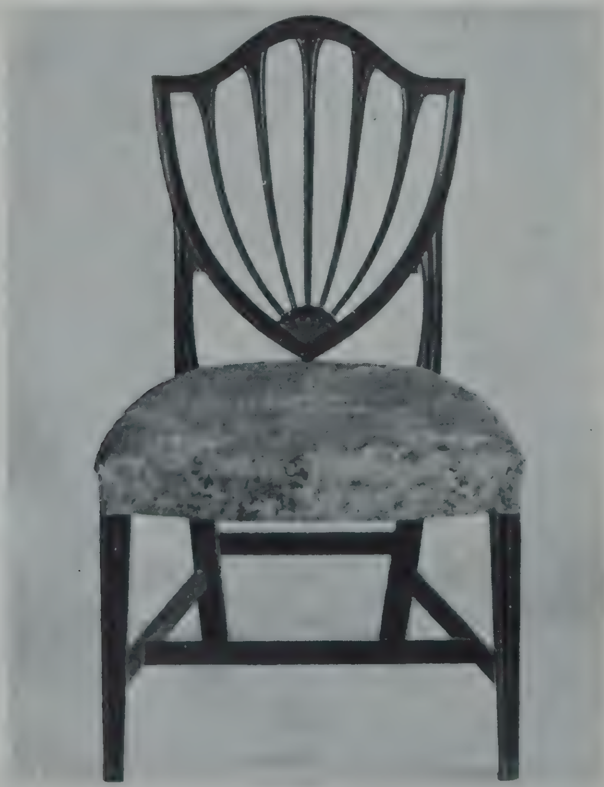
Woodwork in the Jeremiah Lee Mansion, Built in 1768 among many of his engravings was a bookplate for Harvard College.

Chasing is a method of enriching plain surfaces by means other than engraving. The process is to chase or work a design into the metal with hammer and tools shaped like chisels but lacking the cutting edges. A hollow piece, such as a cup, a bowl or a tankard, was filled with hot pitch, and when this had cooled it formed a solid, resistant body against which punch marks or lines could be struck in with hammer and tools without punching through the walls of the piece or changing its shape. Engraving differs from this in that it consists of cut lines ploughed through the surface of the metal with a sharp graver. Use of chasing is characteristic of seventeenth century silver; both chasing and engraving were used about the middle of the eighteenth century, while later objects were enriched quite generally with engraving only, which nevertheless gave a rich effect.

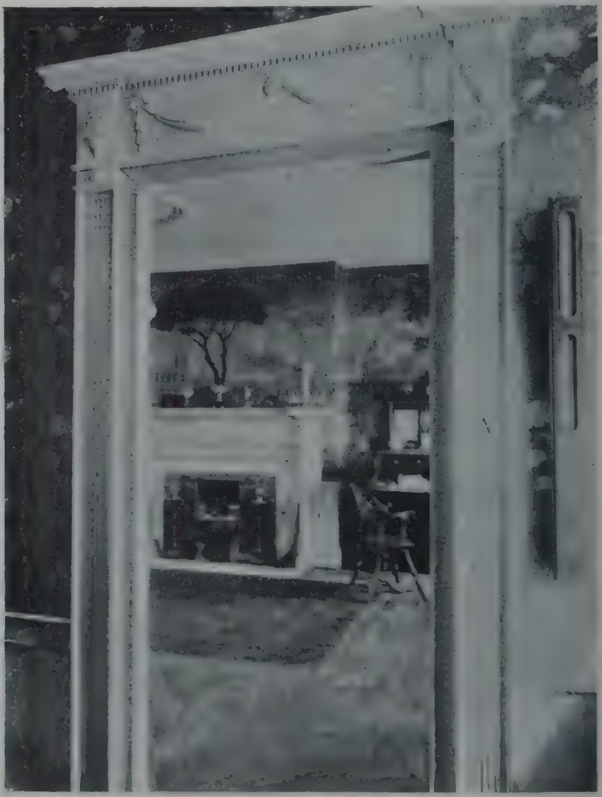
American Silver, Made Toward the End of the Eighteenth Century

Historic American Silver. Two extremely interesting examples of American silver, probably unmatched for historic interest, are a punch bowl made by Paul Revere (1735-1818) and an inkstand by Philip Syng (1703-1789), of Philadelphia. The bowl was made in commemoration of the vote in the Massachusetts Bay House of Representatives by the "Glorious Ninety-two" who voted not to rescind a circular letter of protest which had been sent to sister colonies. This vote—"not to rescind"—was taken, during the year 1768, in defiance of a command by George III, and caused great excitement and much celebration in the colonies. The bowl is inscribed with the names of the "Sons of Liberty" who commissioned Paul Revere to make it. The second object, the inkstand made by Philip Syng, is now preserved in Independence Hall. Philip Syng was a silversmith of distinction, a respected citizen, and a friend of Franklin. It seems probable that this silversmith was unaware of the significance that an example of his handiwork would have for future generations of Americans, but out of his inkstand were written into American history, by signature, the Declaration of Independence and the national Constitution.

Church Silver. Our older churches were the possessors of much fine silver; there were flagons, tankards, basins, beakers, etc., some of which have been destroyed either by accidental fire or by the fire of the melting pot. Much American silver was undoubtedly carried away by the departing Loyalists.



American Chair in the Style of Hepplewhite



Door Trim in the Cook-Oliver House, Salem

F.G.
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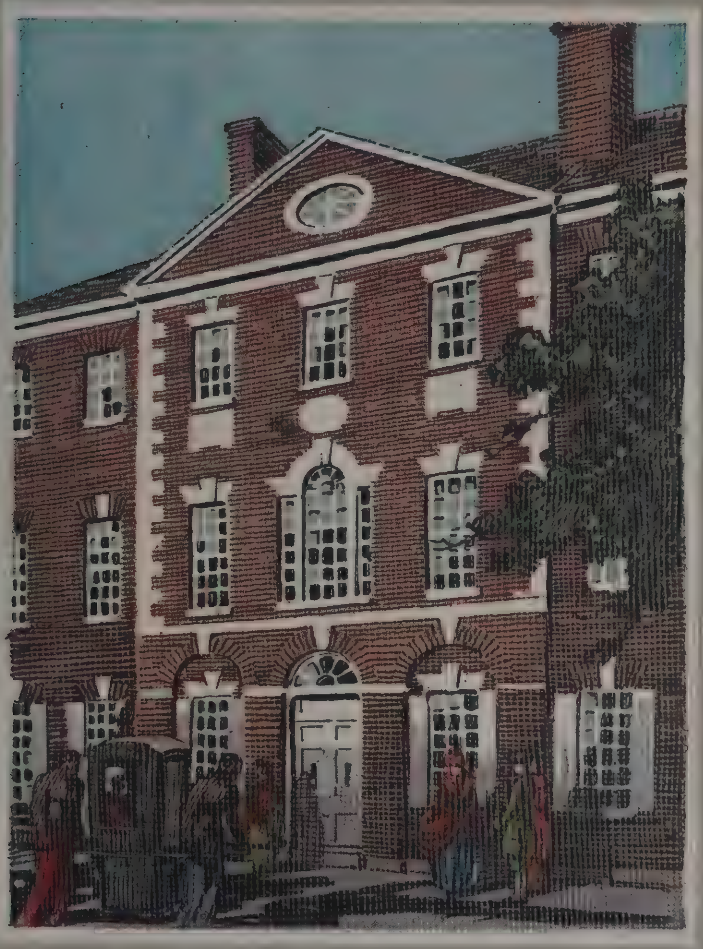
THE ARCHITECTURAL FORUM



SEPTEMBER 1925

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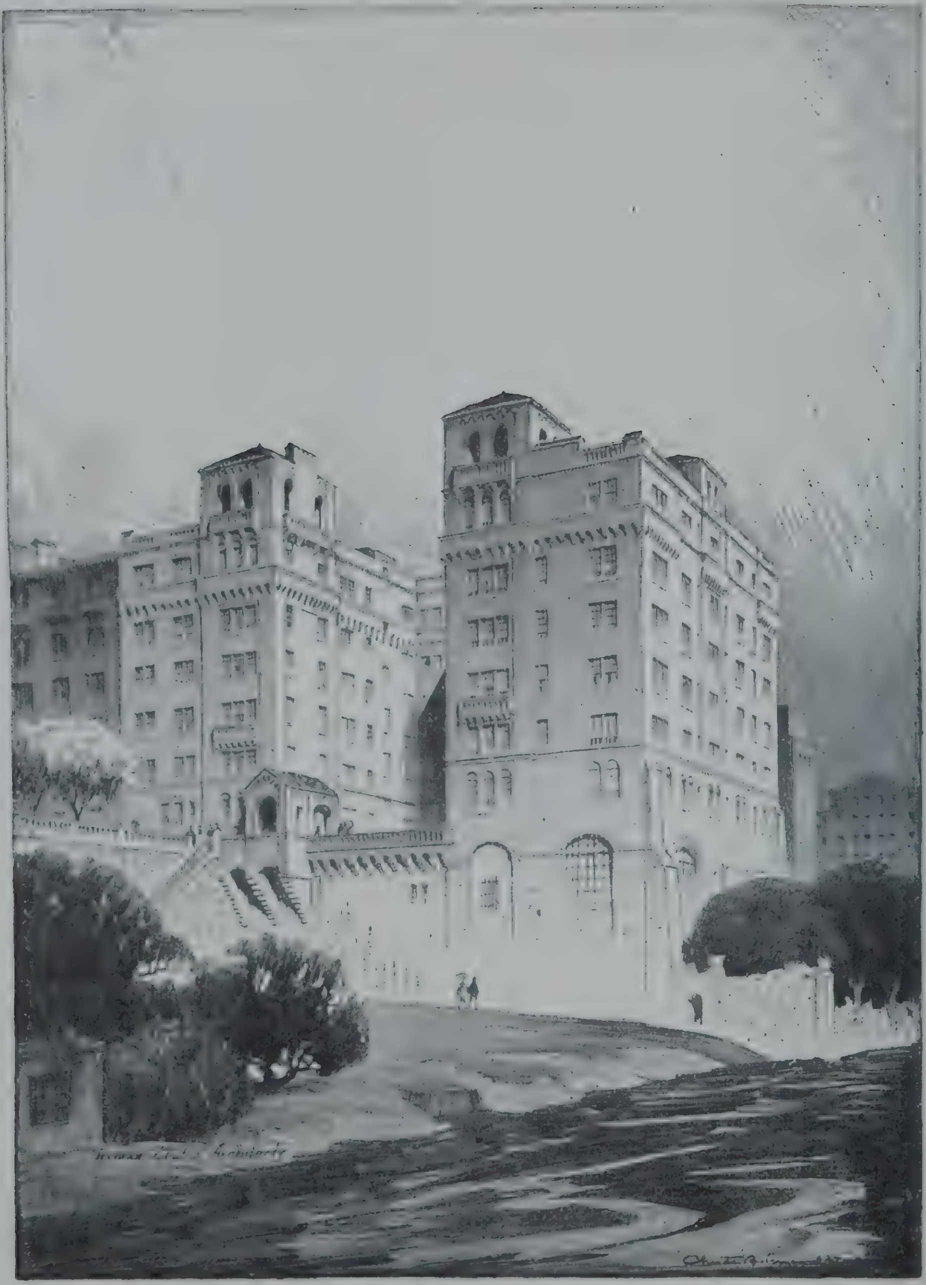


BEEKMAN TERRACE, NEW YORK

TREANOR & FATIO, ARCHITECTS;
J. E. R. CARPENTER, CONSULTING ARCHITECT

From a drawing by Chester B. Price

The Architectural Forum

The
ARCHITECTURAL
FORUM

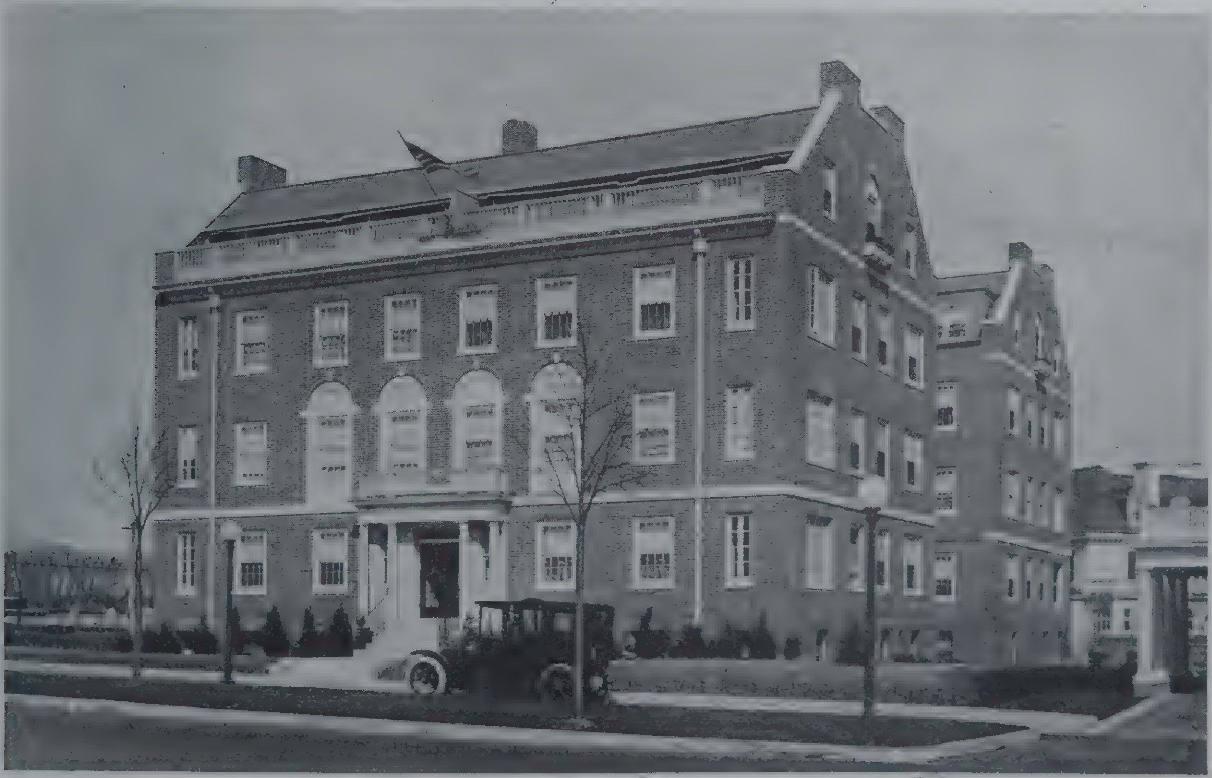
VOLUME XLIII SEPTEMBER 1925 NUMBER 3

Design and Plan of Small City Apartment Buildings

By R. E. LEE TAYLOR
Of the Office of Parker, Thomas & Rice, Architects, Baltimore

IN the development of American architecture no subject has received more intensive study than that of the planning and designing of apartment houses. This type of building, originating for us as it did in the demand for simpler living conditions and in the desire for a means of escape from increasingly vexing problems of service and maintenance in the privately owned house, showed in its early solutions a plan which was singularly ill-adapted to the requirements. The earlier apartment buildings were largely built within restricted city limits, and often on lots previously occupied by one or two dwellings. As a result, their plans were generally of the long and narrow type, depending for their side light on inadequate alleys or courts; the rooms were arranged end to end, served by long, dark corridors, the entire arrangement resembling that of a train of cars more than that of a home. Every American city is full of examples of this type, now happily obsolete, but it was not long before the unattractive interior arrangements of such buildings led to the invention of a more scientific and attractive solution. Even on a narrow lot it was found that a much more convenient arrangement of the apartment could be obtained by abandoning the former front hall and stairway circulation and by adopting a plan in which public halls and stairways were located more nearly in the middle of the building, resulting in the I-shaped plan, with the principal rooms occupying the spaces at the front and back, where good light and air conditions were obtainable.

Nothing illustrates more forcibly the improvement which has taken place in plans for small city apartment houses on comparatively narrow lots than the familiar illustrations of buildings in the Central Park section of New York, many of which, originally laid

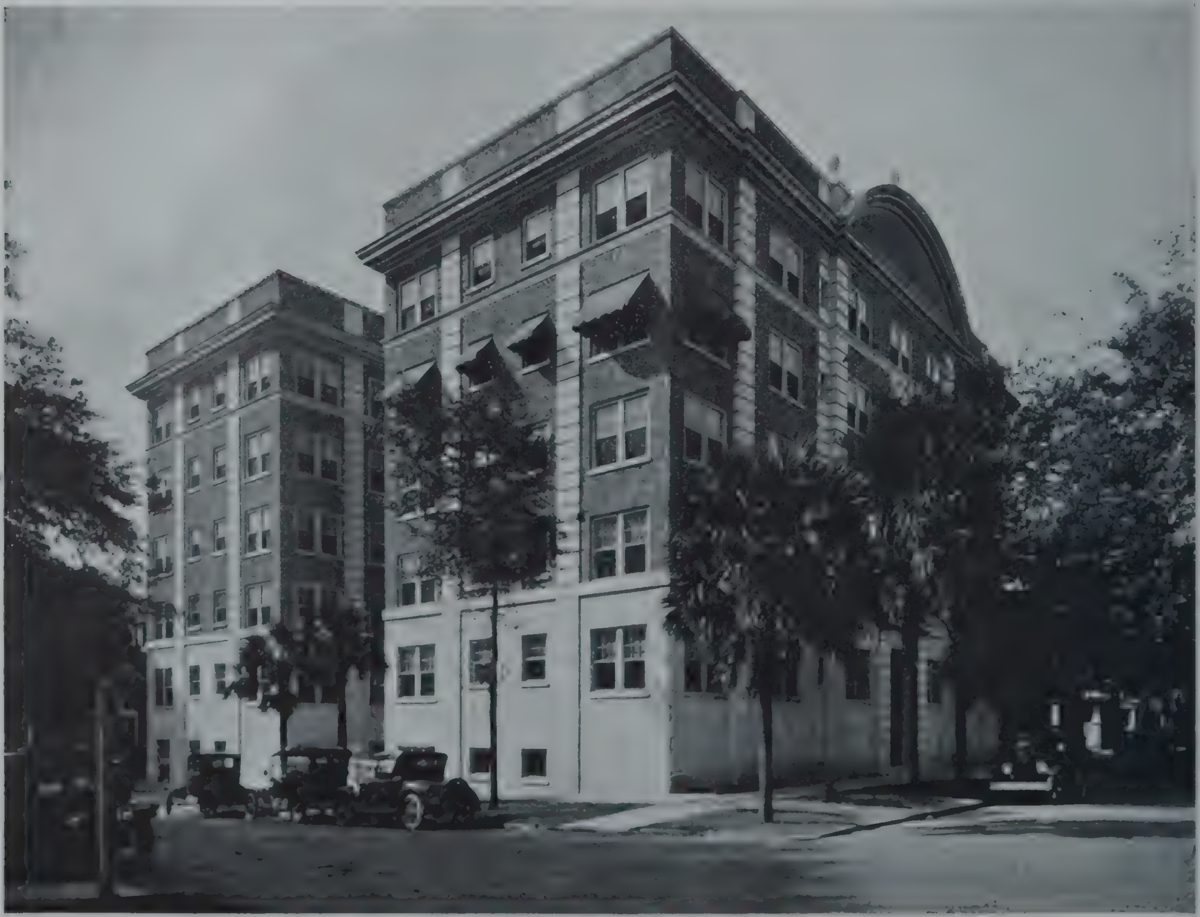


The Carlton Apartments, Baltimore
Parker, Thomas & Rice, Architects

out with long "bowling alley" corridors and unrelated strings of rooms, have since been remodeled to provide for halls and circulation in the centers, with apartments at the fronts and backs. In some cases this idea has been carried to its natural and most charming conclusion by developing these rear lots as small city gardens, and where this has been done it is found that the suites of apartments at the rears are often more attractive than those on the street fronts. But even this arrangement, a marked improvement on its predecessor, was soon found to provide but meager and unattractive exposures for the rooms which could not be faced directly on the front or back, and as a further improvement we find a marked tendency, even within congested portions of the larger cities, to provide for wider and more ample lots, and as a result, we now have the familiar apartment houses of the courtyard type, on lots of square shape, and of sufficient sizes to enable the designer to introduce charming interior courtyards full of possibilities in architectural and landscape treatment, and bringing into the lives of the dwellers in city apartments something of the charm of life in the individual, free-standing houses of the suburbs.

On large lots of considerable depth these more complicated "court" plans have also developed higher percentages of rentable area than could be obtained otherwise, since the courts themselves form attractive means of approach to any number of interior entrances and stairways, and in this way the buildings can be subdivided into comparatively square units, served by their own stairways, while the "circulation" within the suites can be accomplished with use of a minimum of hall and corridor spaces, and with a maximum of light, ventilation and "cross draft." Turning to the inter-relation and detailed arrangement of rooms, it may be laid down as the principal desideratum of modern apartment house arrangement that it shall be as nearly like that of a good individual house as possible. For this reason it is desirable that the general living quarters, consisting often of nothing more than the living room and dining room, with perhaps a small entrance foyer, should be located near the principal stair hall entrance, with a minimum of long and narrow corridor space, and that it should open out to give the appearance of spaciousness as far as this can be done in the limited area which may be assigned to the suite, if the apartment is to rent at a modest price. This is likely to give an attractive plan.

A comparison of the accepted type of small apartment house of say 20 years ago with those of more recent developments will show that, when tested by this rather obvious rule, the older buildings fell far short of the perfect solution. One finds a persistent recurrence of the "dumb-bell" plan, where the liv-



No. 310 West Church Street, Jacksonville, Fla.
Hentz, Reid & Adler, Architects

ing rooms are placed across the fronts and the dining rooms across the rears, with long, dark corridors between, along which are strung the bedrooms, baths and service rooms. Nothing more miserably adapted to the requirements of entertaining or of privacy in the bedroom portions of such apartments could well be imagined,—nothing less like what we should expect to find in a well ordered private house. Today no such plan would pass even its first inspection by the prospective landlord. Even if the waste space due to long corridors were all on the tenants' sides of the public and stair hall partitions, he would realize at once that his building would suffer badly by comparison with those in which one enters, for instance, an apartment having a comfortable and roomy foyer, with large and well balanced openings into the living room on one side and the dining room on the other,—as in private house plans of the familiar central hall "Colonial" type, and with a compact private hall beyond, from which open the master bedrooms. That these master bedrooms should all be approached from such a private bedroom hall, by the way, seems axiomatic. There is little excuse for the unfortunate arrangement, which still persists in many small apartment plans, where one or more bedrooms open directly from the living room. It may suit the requirements of a few special cases, but as a general solution for typical tenants it is highly undesirable.

One of the first matters which must be settled is whether the small city apartment house is to be provided with elevator service. Obviously such provision means a higher rental, and on account of this fact it has been found in most localities that the public is entirely satisfied with apartment buildings of the "walk up" type, provided they are not more than four stories high. In spite of the convenience of the elevator, price is so prime a consideration with many tenants that they are glad to forego having this convenience if they are able to obtain apartments otherwise equally attractive at slightly lower rentals. In fact the demands for the most ample and comfortable living quarters possible within a modest price limit are so insistent that it is often found, even in buildings of the "walk up" type, that the first suites to be taken are those on the top floors, where a slight differential in price is offered to obtain tenants for these top floor suites.

Another important decision which must be made in the very beginning of the planning (where the size and shape of the lot permit of any choice) is the question of how many master bedrooms and bathrooms are to be planned for each suite. Here again, the inexorable demands of the pocket book of the modest salaried city dweller force him to accept the most compact arrangement in which he is able to live in comfort. Dreams of a guest room are

No. 696 Peachtree Street, Atlanta
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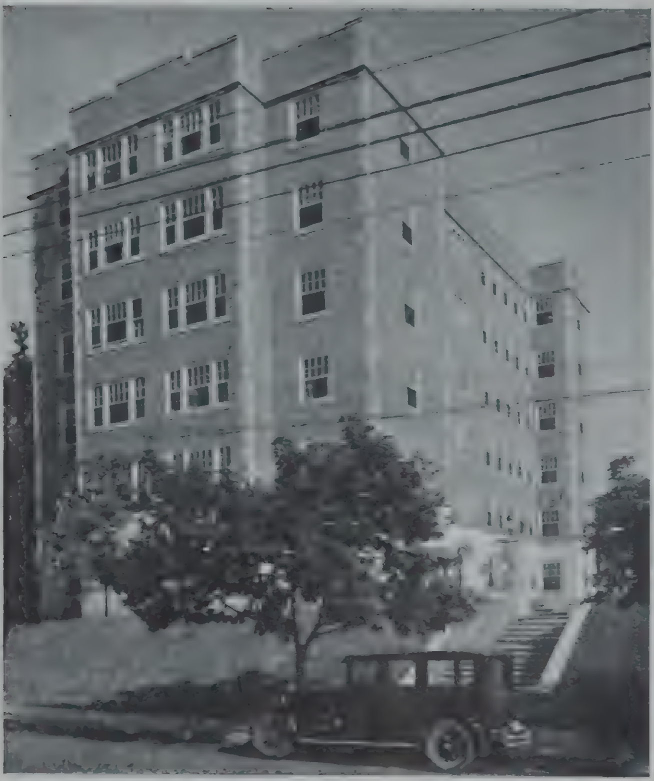
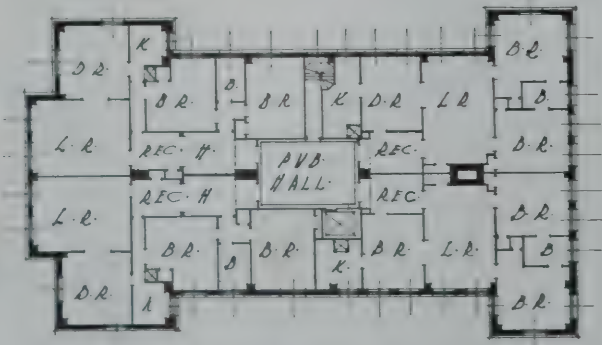
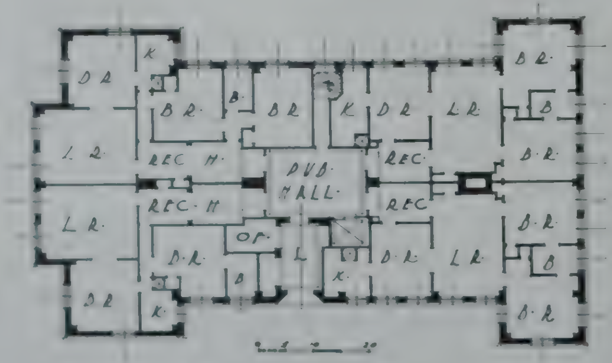


Laurel Heights Apartments, Knoxville, Tenn.
Barber & McMurray, Architects



A Typical Floor Plan



Entrance Floor Plan

abandoned, and the resources of the nearby hotel are called upon when guests must be entertained. As between the demand for an apartment with two bedrooms and one bath and one which provides for three bedrooms and two baths, it is safe to say that the market for the smaller type is at least three times as great as that for the larger. This is a very important matter, since it is obviously greatly to the landlord's advantage to have a building which caters to the largest possible market, thus minimizing the danger of having vacancies, and also expediting the securing of new tenants when such vacancies do occur, as they occasionally do.

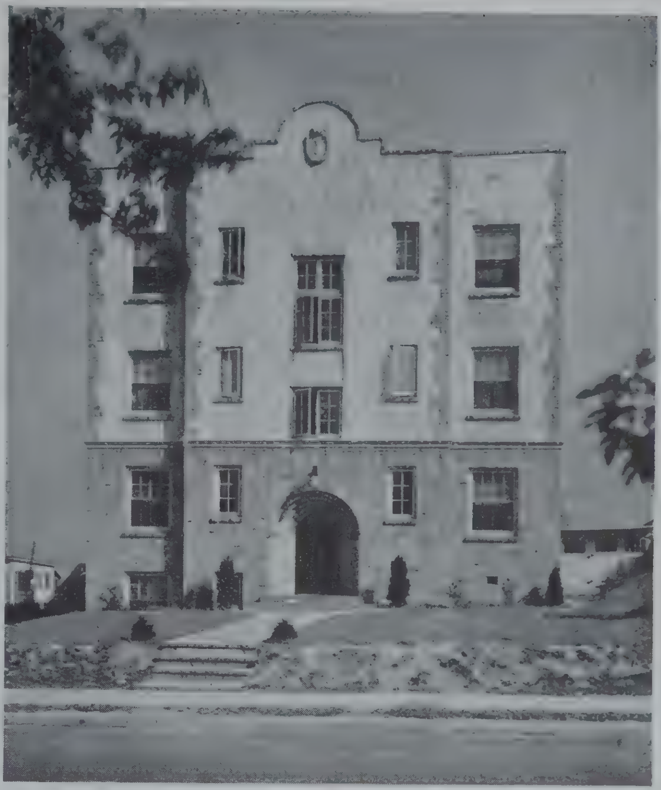
Still another fundamental question is as to where to provide for servants' rooms. The solution of this question depends largely upon the locality. In the South and West, where domestic servants are unwilling to live on the premises, it is sufficient to provide for very small servants' rooms somewhere in the building (often in a high basement otherwise wasted), these rooms serving merely as places where the domestics may change their clothes when coming to work or when leaving for the day. In the larger cities of the East a more ample provision is demanded, and for plans of this type there is possible the choice between arranging for maids' rooms directly connected with each suite and the plan which provides for the concentration of all the maids' rooms on one floor. Where the exposure or architectural design indicates some one floor less attractive than the others for development into master bedrooms, the placing of all maids' rooms on one floor is defensible; but no one will deny the greater convenience of having the maids' rooms incorporated into each suite where conditions will permit of it.

In many parts of the country, especially in the South, there is an insistent demand for porches. In apartments of the earlier type these were seldom provided. Nothing is more difficult to compose and relate to the architectural design than a number of super-imposed porches, and in the effort to escape from this *bete noir* of the designer many ingenious solutions have been offered which, though not constituting porches of the type that would be preferred in the free-standing suburban dwelling, afford the tenant some opportunity to live a part of his life outdoors. Corner spaces occurring within the main bulk of the building have been developed with practically all exterior walls in glass, forming attractive sunrooms; loggias recessed within the main building walls have been tried, and in the larger structures of the "courtyard" type these loggias have often been developed as connecting links between the principal building masses and as an attractive part of the designs. The one feature which seems essential, if porches are to be attempted at all, is that they shall be open on at least two sides; if this cannot be accomplished it is better to abandon use of them entirely, as impracticable.

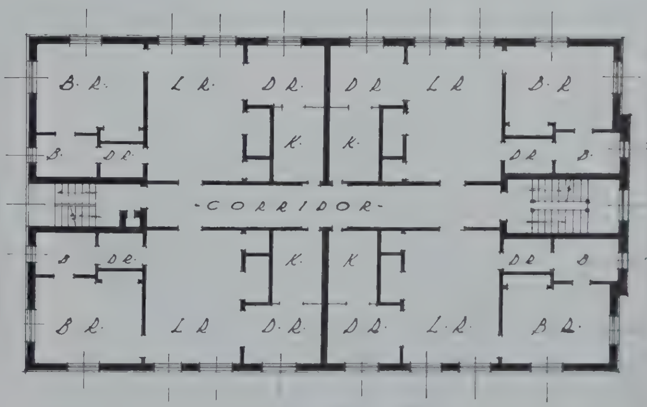
To assure the popularity of a small city apartment nothing is more important than most ample provisions for the comfort and convenience of the housekeeper in the way of labor-saving devices. Modern ingenuity has given us the mechanically operated refrigerator, which dispenses with the services of the iceman, and the incinerator, which dispenses with those of the garbage collector; in addition to these important features, many others are now incorporated even in buildings of the smaller type. Arrangements for vacuum cleaning, and for simple emergency laundry work; cold closets, where provisions may be kept without ice or refrigeration; ample dumbwaiter service to the basements; bathroom, pantry and kitchen accessories of the most modern type,—all of which contribute toward the popularity of the building which incorporates them in its plans. Such buildings will inevitably draw tenants from those in which the demands for such creature comforts are ignored as completely as they were on the early American farm.

And if labor-preventing devices are important, nuisance-avoiding and nerve-saving devices are even more so. The most important of these, in an apartment building, is soundproofing. This is no simple matter. To insulate walls, or even floors, against the transmission of the tones of a moderate speaking voice is not a very difficult or expensive matter. But suppose one of the tenants is a pianist, or (horrible to contemplate!) even a cornetist! Within reasonable cost limits there is really no solution that has been found for this vexing problem. Much can be done with ordinary double walls, insulated at all bearings and having heavy quilting or felting hung between the two partitions. At somewhat greater expense, floors may be "floated" on felt or other sound-absorbing bearings. Recently some interesting experiments have been tried with partitions of cork; but the problem still awaits a satisfactory and inexpensive solution.

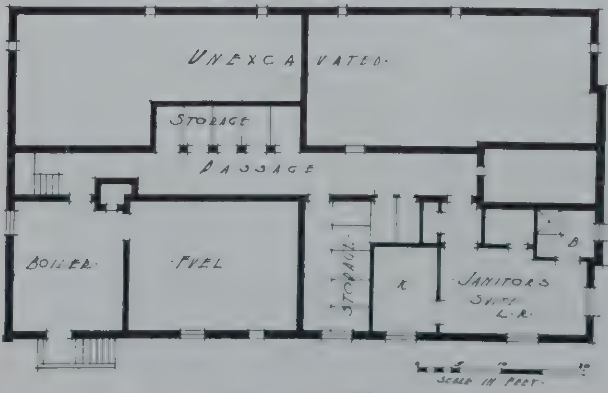
A comparatively modern demand, which must be met wherever possible, especially in suburban apartments, is that for the housing of the tenants' automobiles. Where the size of the property is sufficiently ample, "apartment garages" are coming more and more into vogue. These are usually one-story outbuildings, screened from view or having their more conspicuous sides treated much in the manner of garden walls. An interesting variation of this on sloping, hillside sites and in cities where the local building laws permit, is the placing of tenants' garages in the lowest floors of the buildings proper, on the down-hill sides. Needless to say, such an arrangement imposes the maximum restrictions of fireproofing on all the building details, and a com-



Henderson Apartments, Knoxville, Tenn.
Barber & McMurray, Architects



A Typical Floor Plan



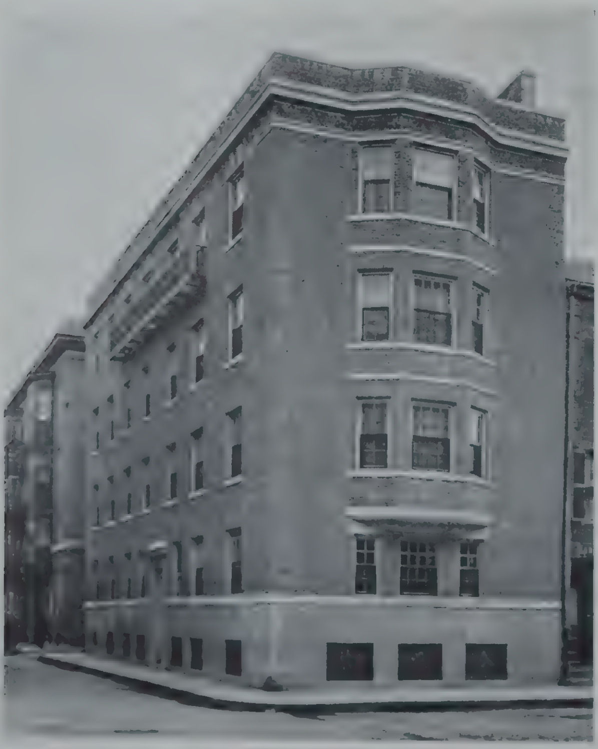
Basement Plan

plete separation of the garage section from other portions of the structure to make it practicable.

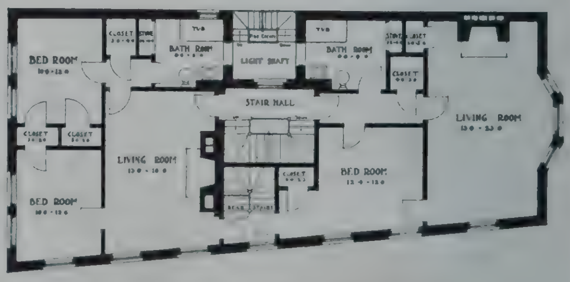
If there has been a marked improvement in the interior plans and arrangement of apartment houses during the last generation, there has been an even more interesting advance in the standard of exterior appearance, not so much in the straight architectural design as in the general setting and atmosphere and in the marked effort to make the apartment house something more than a warehouse for the storage of human beings. It is true that the great city apartments, erected on enormously expensive land, must always continue to be towering masses of masonry, which cannot possibly express anything of the intimacy and personal charm of the individual home. But, except in places where economic pressure and metropolitan congestion make such structures inevitable, the modern tendency is all toward the apartment building built in more open sections and designed in more of the residential scale. Earlier types of stiff and formal structures between party walls, offering no relief from the dust and dirt of the city streets, have given place to open or courtyard designs in which a spot of green, or perhaps even a garden refreshes the tired business man with a suggestion of the open country. The formalism of the Parisian boulevard has yielded to a simpler and more charming expression of the life which is led within. In the suburbs rambling structures of the English type give a suggestion of the privacy and the individuality of the free-standing house, and reduce the scale of the buildings to something more in conformity with the surrounding, homelike cottages.

Particularly of late have the larger group plans of the courtyard type been developed to give more of the charm of the country house, and when these courtyards are enclosed or partially enclosed spaces of the *patio* type, inspiration has been sought from the dwellings of the southern Latin races, past masters of the art of developing the enclosed garden, and strong Italian or Spanish influence may be noted. There are not wanting, even in great cities such as New York, structures which, through the charm of planting and the furnishings of these interior courts, with their gardens, walks and fountains, rival the finest establishments of the wealthy country dweller, and differ from them only in the inevitably greater heights and masses of the buildings.

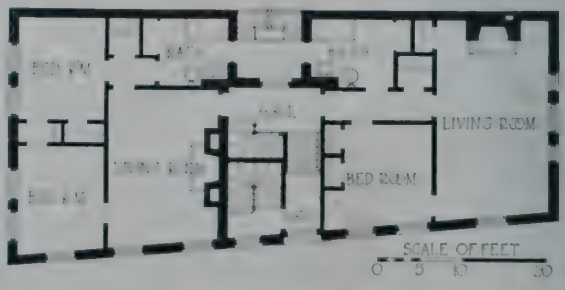
What will the future bring? It is impossible to predict, but it is safe to say that the improvements in planning and design which have been so noticeable during the last 20 years will be duplicated by improvements equally striking in the 20 to come. With the tendency toward greater interest in the building by the tenant, evidenced particularly in some cities by the amazing popularity of the coöperative type of the apartment house, we find a most hopeful sign,—for so soon as the apartment dweller begins to take the same interest in his home as is taken by his neighbor who owns a house and lot, we shall be assured of an improvement in standards that will produce the apartment house of individuality and character and leave far behind the colorless and institutional masses of brick and stone which can with difficulty be distinguished from their neighboring hospitals and hotels, buildings of a different order.



No. 32 River Street, Boston
Leland & Loring, Architects



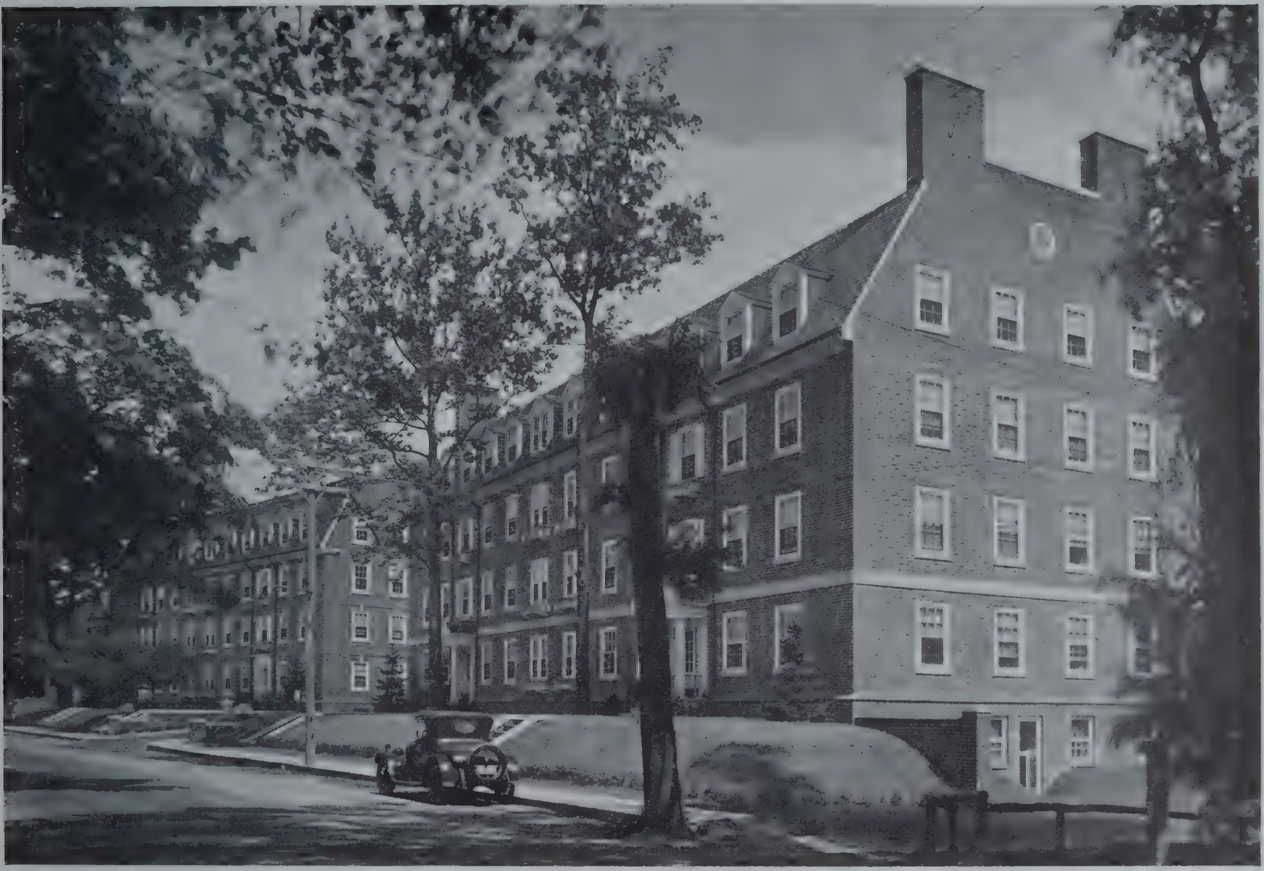
Typical Floor Plan

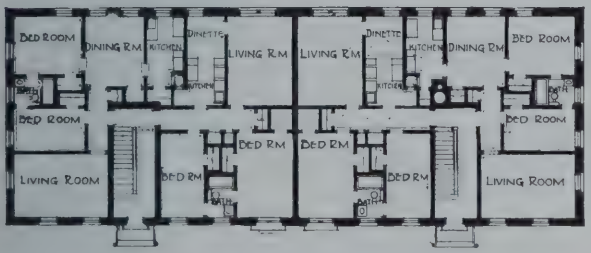


Entrance Floor Plan

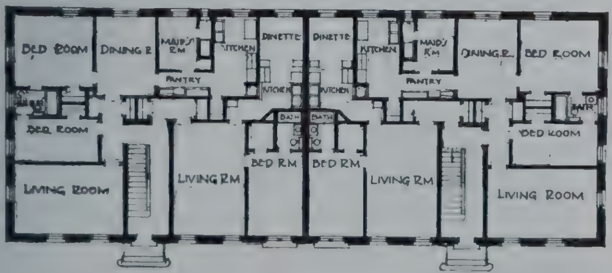
Standish and Cabot Halls, Bronxville, N. Y.

BATES & HOWE, Architects



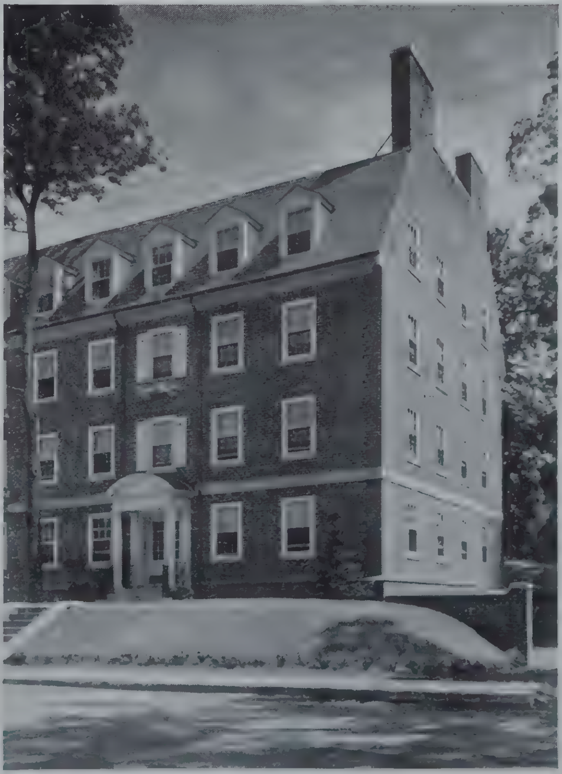


Ground Floor

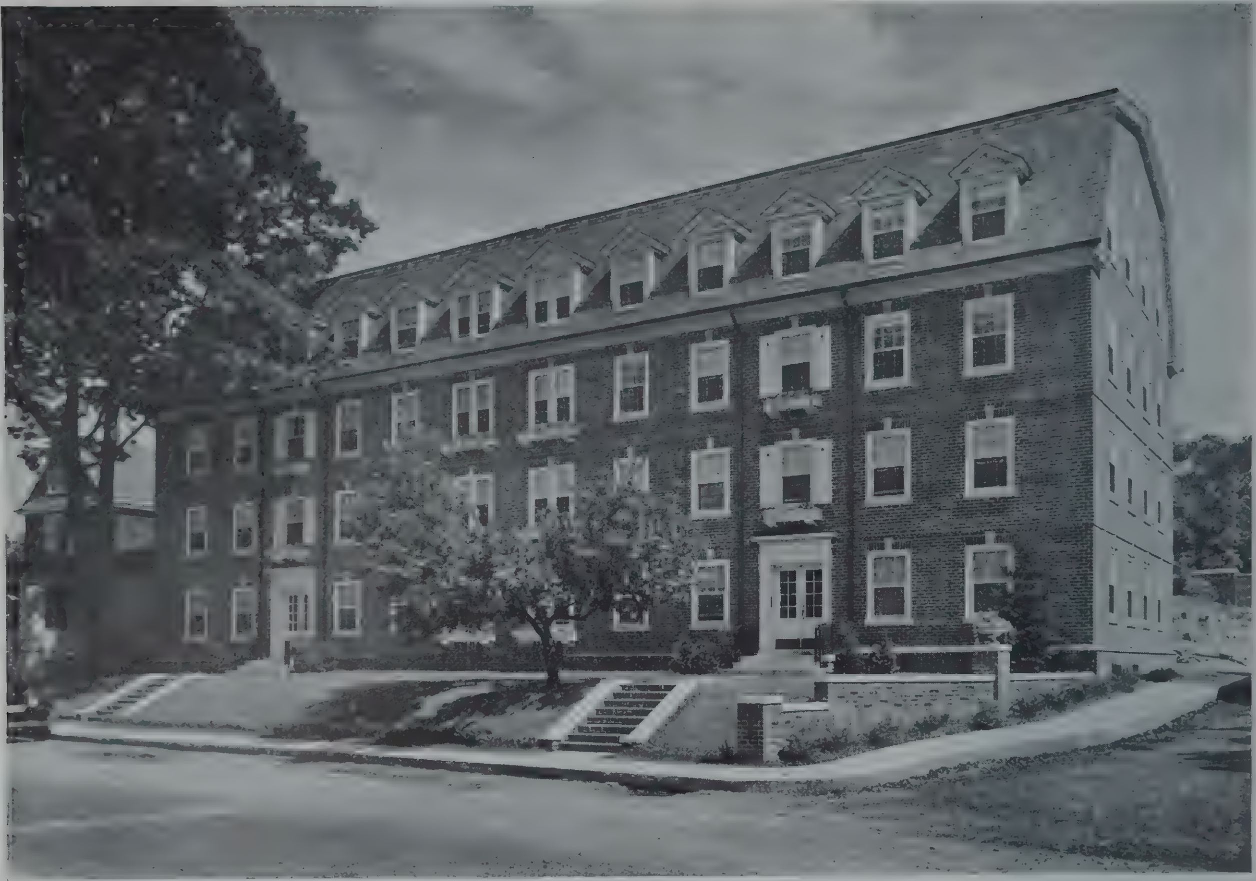


Ground Floor

Standish and Cabot Halls

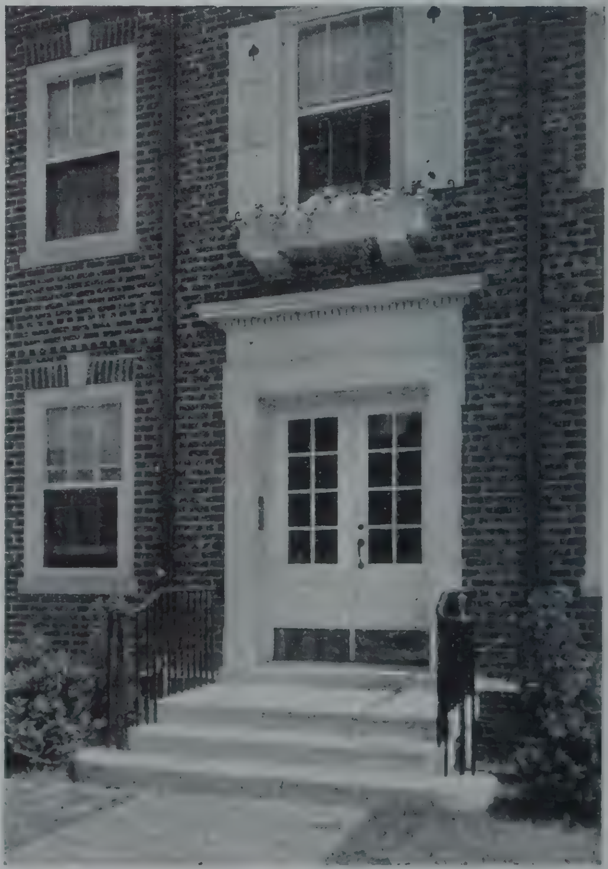


Detail, Cabot Hall



Standish Hall, Bronxville, N. Y.

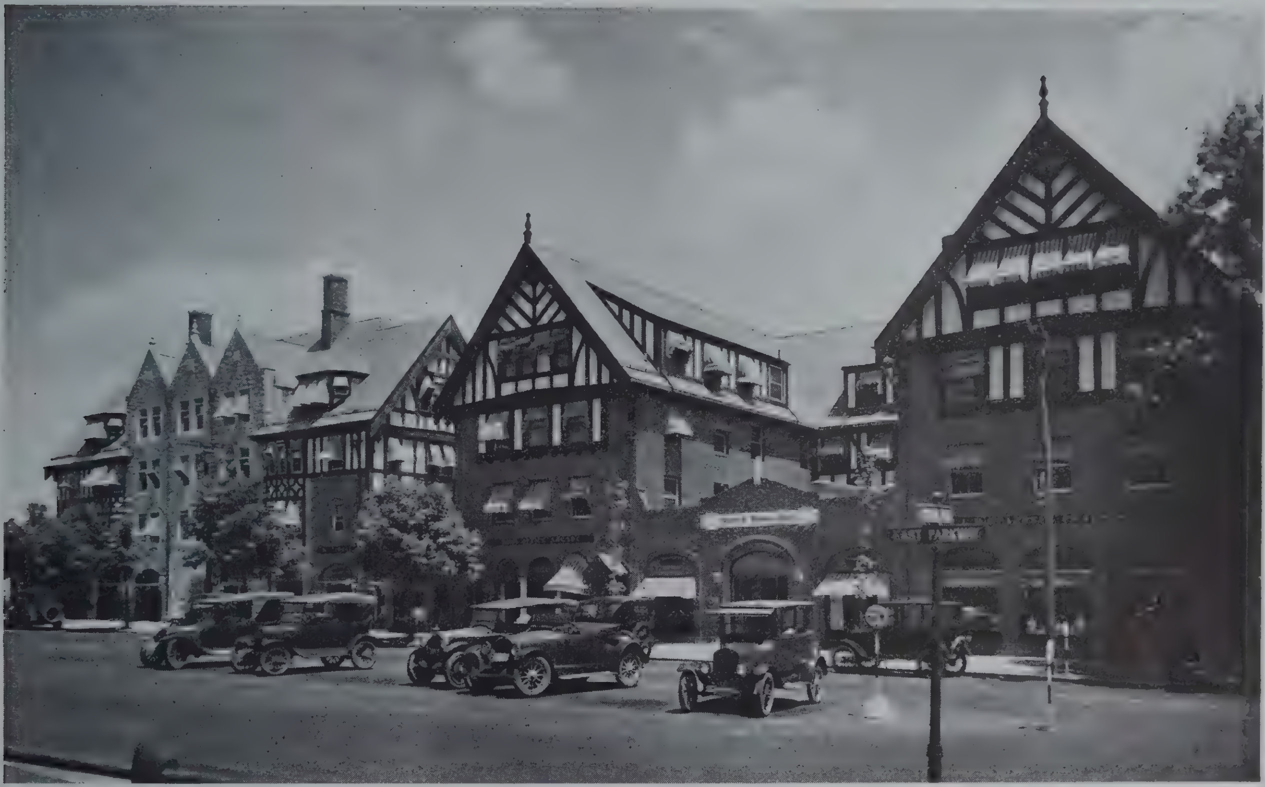
A PLEASING variation from the Tudor style of architecture, which has been so largely employed in the designing of store and apartment buildings at Bronxville, N. Y., is found in these two new apartment buildings recently completed by Bates & Howe in this picturesque suburban town. For their inspiration the architects have taken Massachusetts Hall, one of the original dormitories, built in the eighteenth century at Harvard University. A severe but conscientiously straightforward adaptation of this simplified type of Colonial architecture has been successfully used for these two large apartment houses. Although similar in size, the buildings differ somewhat in roof treatment and details. Standish Hall shows a gambrel roof, key blocks in all the window arches and a simple type of Colonial doorway for the entrances. The use of end chimneys, a heavy marble belt course above the first story, and covered entrance porches, adds interest and distinction to Cabot Hall. Red brick and white painted trim on both buildings still further denote the Colonial character of the design. Situated on a slightly falling grade, the front lawns with grass terraces add to the dignity of both buildings. It is rather to be regretted that green painted blinds could not have been used for all the windows, to ameliorate somewhat the severity of the facades. The lack of blinds or shutters, except where they appear together with flower boxes, gives to both buildings too much of an institutional appearance.

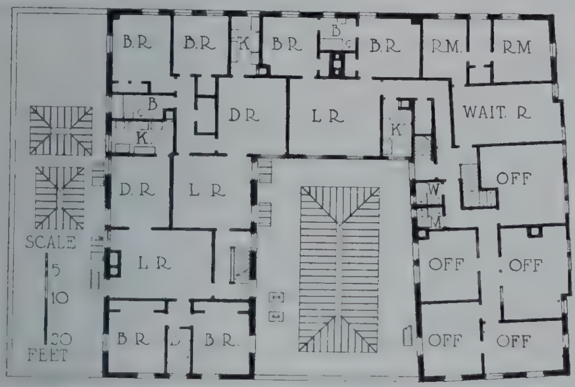


Detail, Standish Hall

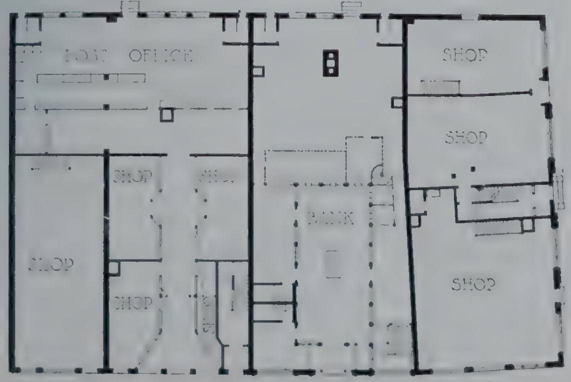
Store and Apartment Buildings, Scarsdale, N. Y.

SCHULTZE & WEAVER, Architects

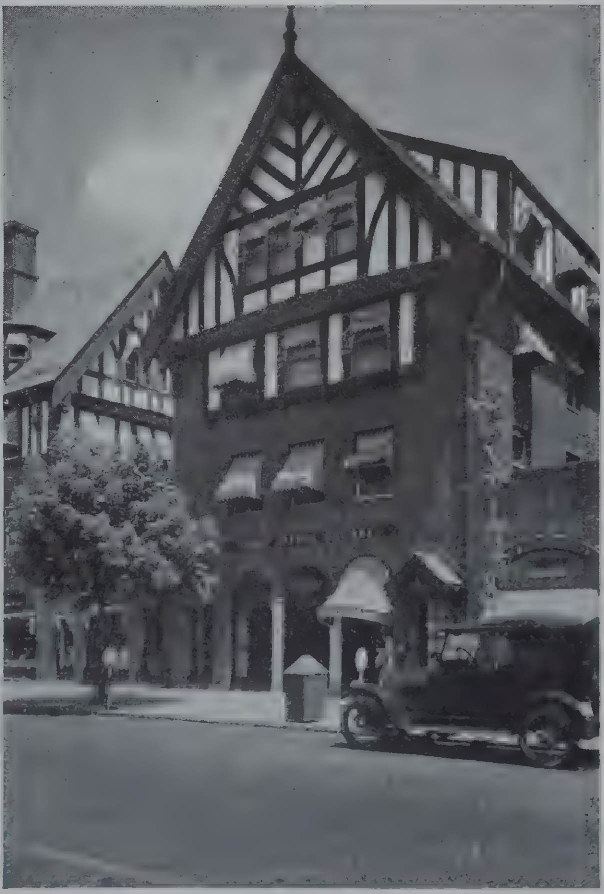




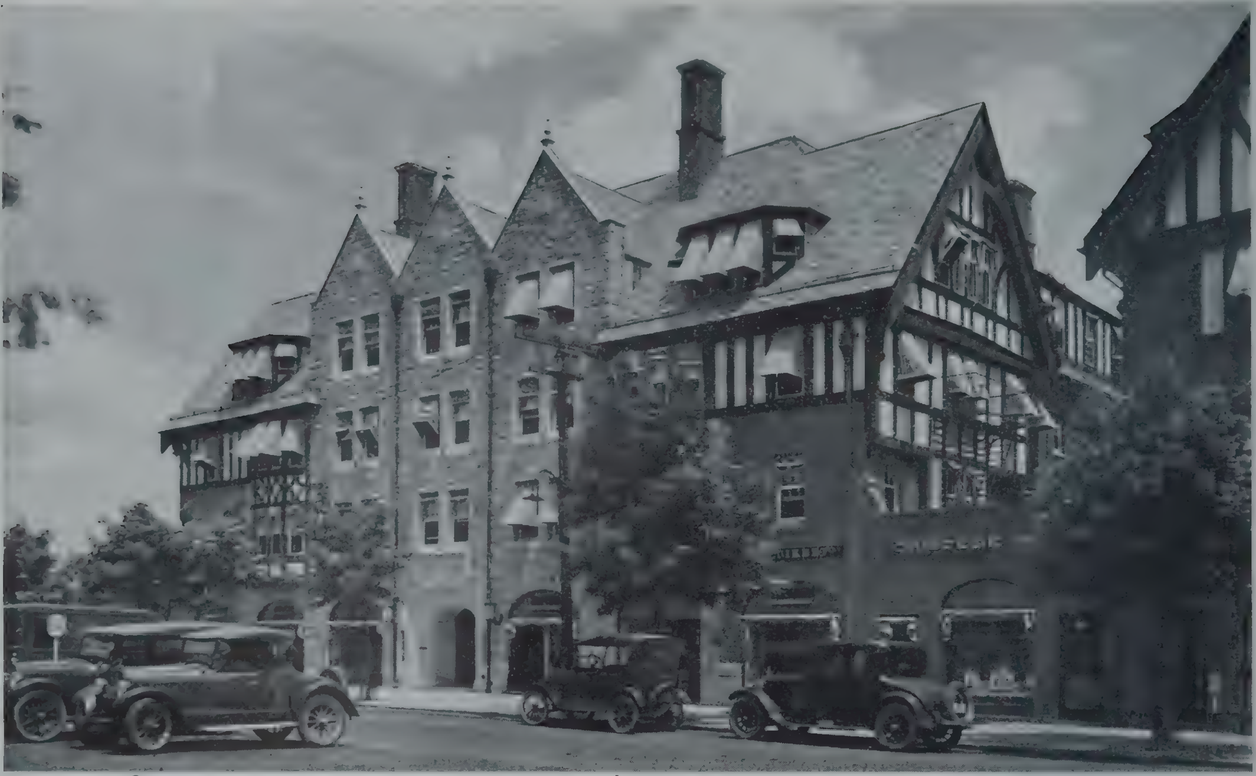
A Typical Floor



First Floor



Detail of a Building at Scarsdale

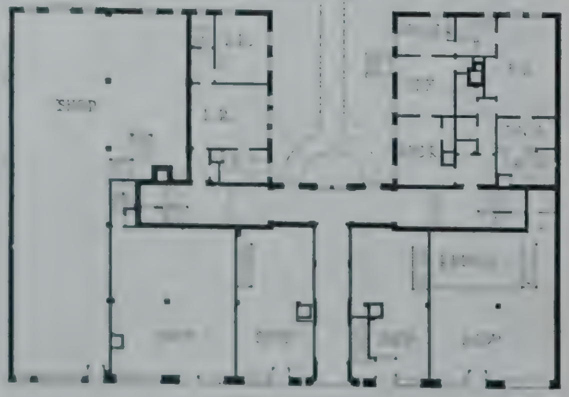


"Scarsdale Apartments," Scarsdale, N. Y.
Schultze & Weaver, Architects

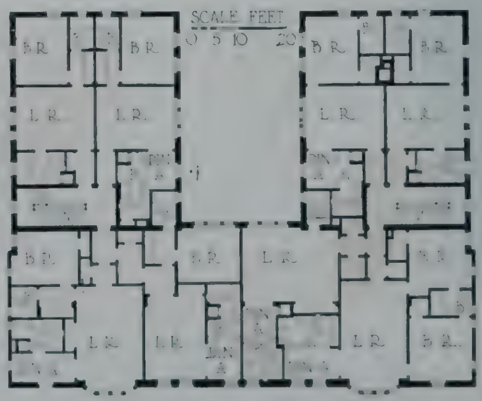
FACING the open plaza opposite the railroad station at Scarsdale, two very attractive suburban store and apartment buildings have recently been completed. The building at the right was completed two years ago, while that at the left was finished in 1924. The style of architecture used for the exterior designs of these two buildings is that of the Elizabethan period, simplified and carefully adapted to modern American suburban needs.

The greater part of the building at the right is faced with brick, wood and stucco being used in half-timber patterns for the gable ends and the shed dormers. The building at the left, which is known as the "Scarsdale Apartments," is well tied to the earlier group by the use of the same arched openings for the shop fronts. In the "Scarsdale Apartments," cut stone is used for the center bay. This bay is divided into three parts by the use of leaders, with an individual gable above each group of windows.

Both buildings are roofed with slate in variegated colors. The construction in each case is slow-burning, with fireproof stair halls. All windows are double-hung; floors are of oak and pine. The heating is from steam. For the plumbing, cast and wrought iron pipes are used, together with enameled iron fixtures. The electrical equipment includes lighting and electric washing machines in the larger apartments. White wood, painted, is used for the trim throughout, in combination with birch doors, painted. Both wallpaper and paint are employed for the interior wall finish. Both these buildings have cost approximately 67½ cents per cubic foot.



First Floor



A Typical Floor

The Suburban Apartment House

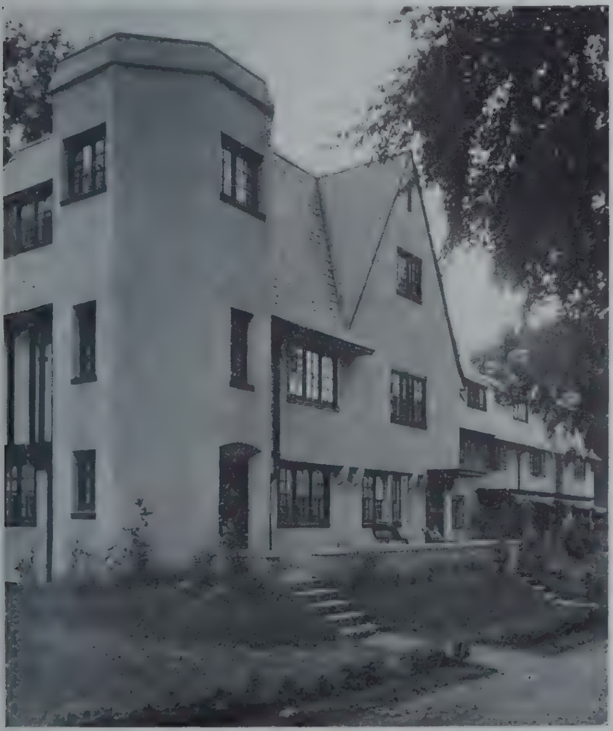
By JOHN TAYLOR BOYD, JR.

THE suburban apartment house represents the most recent field in architecture, and it promises to have a remarkable development. The reasons for its growth are chiefly economic; people are turning to apartments because they find them cheaper and more convenient than individual houses.

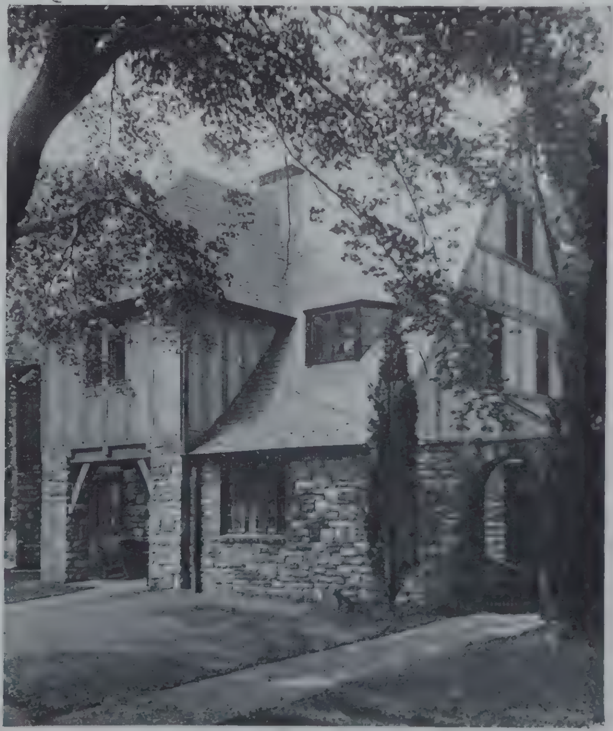
From a financial point of view, there is much to be said in favor of the apartment. It costs less, both to construct and operate per family housed. In addition, it should be cheaper in the cost of financing, because it is a larger operation, undertaken on a strictly business basis, and it has the advantage of a better "market," either as regards the sale of the property itself or as concerns the disposal of any bond issue which may be necessary.

Generally speaking, an apartment house may be financed with a larger percentage of mortgage money borrowed at a lower rate than the individual house. If such a house is considered from a strictly business standpoint, it is likely to appear more speculative. The house that suits the personal needs of one owner may not be attractive to others, and it may be sold at a loss if the owner is obliged to place it on the real estate market. The heavier cost of financing the single-family house is not generally realized, but it is nevertheless a large item. The fact is that the tremendous increase in costs of land and building construction since the war has not added to the cost of building nearly as much as has the higher cost of financing. This truth has received much attention lately. Andrew J. Thomas has developed its bearing on apartment house construction in his pamphlet "Garden Apartments to Replace Slums," and the 1925 Report of the New York State Commission of Housing and Regional Planning, of which Clarence S. Stein is Chairman, has explained the principle in detail.

By reason of its advantages when regarded as a financial proposition, the apartment is bound to succeed in the long run in many districts and localities in competition with the individual house. In making this statement I do not wish to appear to be a partisan of the apartment. The individual house has its striking merits, and it will always fulfill certain social and personal needs, particularly for those who can afford the cost. The value of the individual house has been fully recognized in housing circles and needs no further explanation here. The point is, that, in suburbs and smaller cities, there is a legitimate place for the apartment house as well as for the individual house. Each type is suited to certain conditions and should stand on its own merits where there is a question of choice. I have no sympathy with the attempts which are made in certain quarters to fight blindly the introduction of apartment houses into smaller towns and cities. Such attempts often take the form of arbitrary zoning restrictions which penalize the natural and legitimate building of apartments. Either they bar apartments entirely from the resi-



"Bolton Gardens," Bronxville, N. Y.
Bates & Howe, Architects



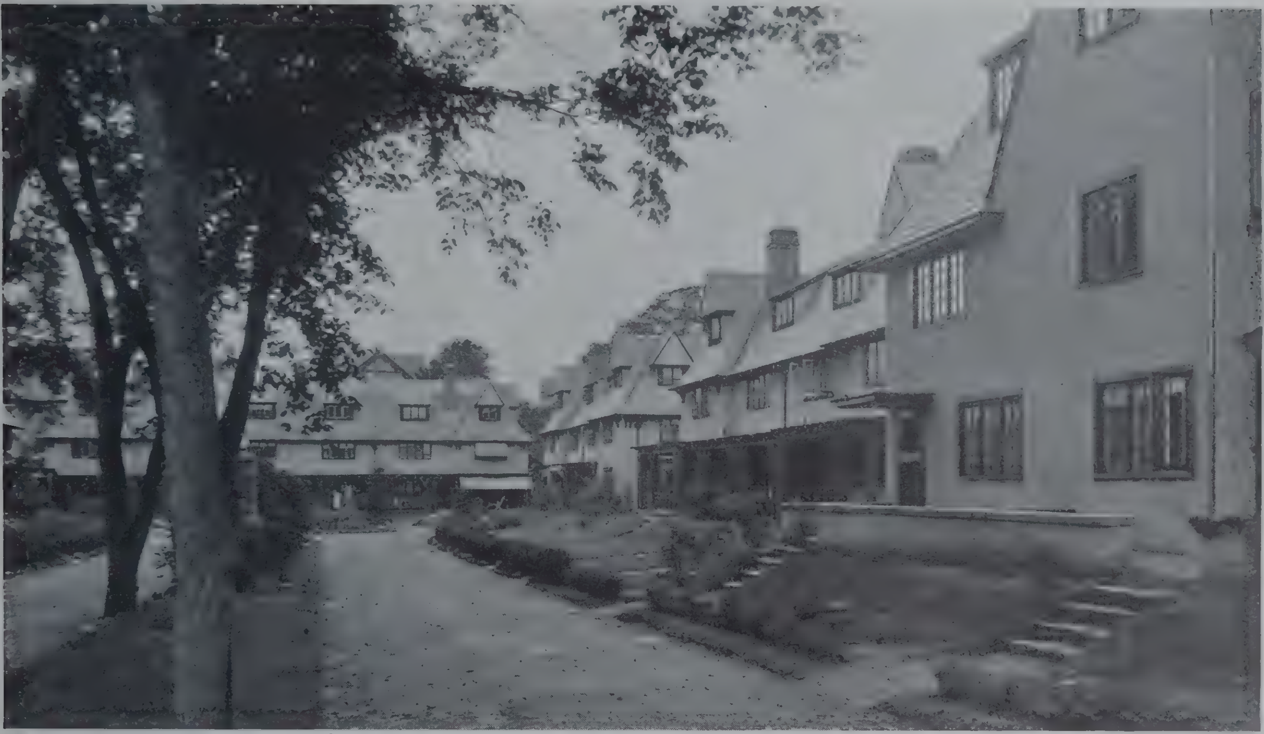
"Merestone Terrace," Bronxville, N. Y.
Penrose Stout, Architect

"Bolton Gardens," Bronxville, N. Y.
Bates & Howe, Architects

dential districts, or else they restrict them to undesirable locations, placing them along with hotels in business sections. This practice is manifestly unfair, because the apartment is a residential building just as much as the individual house, and in any sound scheme of zoning the residential character of the apartment should be given full recognition. Ample, well situated residence districts should in every instance be set aside for apartments.

From a broad point of view, the hostility directed against the apartment house may actually be a benefit. One must admit that this enmity is deserved in no small degree, because the type of apartments which is foisted on smaller towns and cities is often absolutely undesirable from a social point of view, and so ruthless in its disregard of good living conditions that people are entirely right in endeavoring to put a stop to its spread. There are many instances in which builders and real estate promoters have outraged public opinion in towns and cities which have never had apartments, by thrusting the intensive, over-built, ugly city apartment type into the very heart of a residential neighborhood. In such a case we have the picture of a charming, tree-lined residence street, with fine, homelike, individual houses set well back from the street and surrounded by ample grounds, all this forming a beautiful, spacious vista, which is ruined by a clumsy, cubical, vertical apartment house, occupying the maximum area of the plot, built solidly up to the building and property lines, with sheer, prison-like walls on all sides, broken only by rudimentary courts. Is it any wonder that such complete contempt for public opinion creates active, unrelenting hostility against the apartment house?

Never let it be said that such a procedure can be justified on "economic grounds." Even from a strictly practical viewpoint, to build the congested city type of apartment in a suburban location is bad business. Its design is based on a top-heavy ratio of building value to land value, involving the overcapitalization of the land by an excessively large building. The individual apartments are likely to be badly planned and to lack the fundamentals of daylight, cross-ventilation and garden outlook, without which no residence can really be a home. An apartment house which does not offer homelike surroundings to tenants is a dangerous financial proposition, because its rental value will suffer in competition. Besides its undesirability as a home, the financial value of the stereotyped city apartment located in the suburbs is further impaired by the fact that its plan usually has heavy wastage of building volume in the shape of corridors or other non-rentable spaces. The proper principles of apartment house design have been set forth in the architectural press repeatedly in recent years, and they should be well understood by this time. But, unfortunately, they are not yet understood. That is clearly proved by the great number of poorly designed apartment buildings which are still being built. True, since the war there has been commendable progress in planning apartment houses, with the result that there are now a number of types which possess the advantages of open planning with adequate daylight, air and ventilation in all the rooms. Nevertheless, the progress has been all too slow. One can almost count on



"Bolton Gardens," Bronxville, N. Y.
Bates & Howe, Architects

one's fingers the apartment houses in which these principles are thoroughly and intelligently acted upon, and even among these how many solve the problem in an imaginative and inspired fashion? If anyone doubts this assertion, let him compare the few very finest suburban apartments with their competitors, the best suburban individual houses, whether of the great mansion or the smaller house type. Are there any apartment houses which are ideal works of architecture comparable to the ideal individual houses, large or small, as exemplified in the work of Mellor, Meigs & Howe, for example? Until there are, the apartment house cannot be said to have come into its own as holding a place in American architecture on the same level with the other classes of American buildings, residential, institutional, public and recreational. I believe it can be said that apartment design is still in its infancy.

The backwardness of apartment house design should lead architects to improve their product and to offer a more successful resistance to the low standards which have been set for them by speculative builders. They should thoroughly analyze apartment house planning until they are able to convince the speculator that, in the very strictest business sense, in the long run there is no profit in stereotyped apartment house design as it is known today. The apartment building has a long lifetime, as compared with that of a motor car, for instance, and there is every reason why its architecture should reflect the same passion for improvement and the eager competition for the introduction of new and better models, which have made the motor industry famous for its progress. Not only that, but those engaged in the designing of apartment houses should understand that an industry is bound to lose prestige when it cannot win public approval. The public opposition to the spread of the apartment house, as seen in the attempts to attack it through zoning, already noticed, should convince builders that they are wrong.

In spite of all that has been written in the architectural press on the fundamental principles of apartment house design, and notwithstanding the unprecedented extent of apartment house building, architects have hardly begun to analyze the problem to its full extent. It is not necessary here to reëxamine the technical complexity of apartment house design, but it may be pertinent to point out certain important fundamental principles, particularly in their specific application to the suburban apartment. If the designer always holds before him the idea that he is competing in attractiveness with the individual house, and if he will bend his energies to rivaling, or to surpassing, if possible, the architectural merits of the small house in every part and detail of his apartment design, and if, in so doing, he will put into his design the same imaginative quality, the same inspiration, the same sense of perfect form and of exquisite detail which have made the individual house in its best examples, whether large or small, the finest achievement in American architecture, he will then—and only then—succeed in making an apartment house which will be regarded as of an acceptable architectural type.

What are the desirable points in the individual house which make it so superior? Among the most important are a sense of ownership; a beautiful environment of landscaped streets, garden surroundings and garden-like neighborhoods; attractive architecture; personality and distinctiveness. These qualities should also distinguish the apartment house, but to be honest, I know of no suburban apartment house design which really possesses these characteristics. I do not know of any apartment neighborhood which has the same attractive community plan or the charming layout of streets, with properly planned squares and recreation centers, of our best residential neighborhoods, such as Forest Hills, Long Island, for example. There are suburban apartment houses which have excellent open plans and garden environment, but where are those which in extraordinary charm and distinction and homelike expression equal the house which received the gold medal of the American Institute of Architects this year, or those other houses which, from time to time, have been honored by the award of the annual medal of the Architectural League of New York? Furthermore, how many apartments have the rare distinctiveness of interior decoration so noteworthy in the best of our large, recent country houses?

In demanding these qualities in an apartment house, people may think that I am asking too much. In other words, they will say, "an apartment house is a commercial building; it is located on high priced land, and it cannot afford all this luxurious architecture and at the same time return a profit." It is on precisely such grounds, however, that I am confident that the apartment house can symbolize beautiful domestic architecture. The business efficiency of the apartment house is the very factor which will eventually force its improvement. The apartment house is so much more economical than the private dwelling, in cost per family housed, that it affords a much wider financial margin for fine architectural form. Moreover, since it has greater practical merits, people will be willing to pay for a finer architectural ideal.

Let us consider in further detail how these possibilities can be developed. If we take the first of them, namely, sense of ownership, which is the strongest attraction of the individual house, we have of course the opportunity of developing coöperative ownership in the apartment house. The coöperators take all the risk, and obtain whatever profit is derived in the form of better architecture and lower costs. In the usual speculative operation, the financial profits may amount to 25 to 30 per cent or more. It will be seen that the fact that high profits are made in apartment house promotion contradicts the statement made at the beginning of this article to the effect that the apartment is cheaper in its financial cost than the small house. Theoretically this should be true, but actually in the apartment house promoters seek—and often obtain—a high profit, whereas the individual house owner furnishes his own equity and expects little or no profit on it.

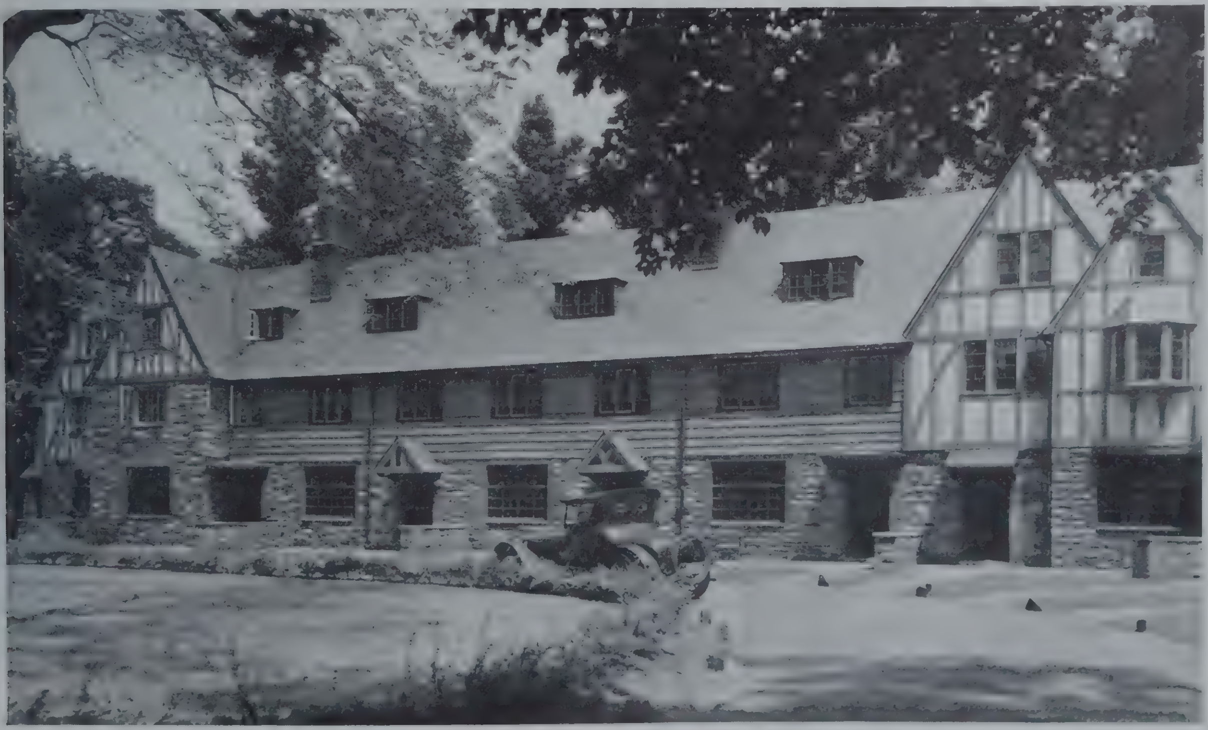
Coöperative ownership in the true sense promises a real improvement in apartment house architecture. Elimination of the usual speculative profit in the financing of an apartment house will enable the coöperators to obtain homes at much lower costs than hitherto and, more important still, it will give them housing of a much finer standard. Suppose,

"Merestone Terrace," Bronxville, N. Y.
Penrose Stout, Architect

for example, that an architect is working to complete a design for a suburban apartment, and that, after great effort, he has produced a design which yields the required amount of dwelling space at the cost allowed. But, in so doing, he has been forced to sacrifice both homelike effect and fine standards of architecture, and he has been obliged to use cheaper materials. In other words, he has produced the typical apartment house of today. His client notes the poor result, and says to the architect: "This will not do; it is flat, uninteresting and unhomelike. Now, suppose I allowed you 25 per cent more on your building cost, what could you do for me?" "Why," the architect exclaims, "what couldn't I do? I could enlarge the room sizes and I could introduce loggias, porches, interesting changes of floor level, arrange apartments on two floors—duplexes, with each family having its own private staircase to the bedrooms above. I could provide those varied and beautiful interior effects which give charm and personality to the house, and which make all the difference between a home and a shelter. I could use finer materials and treat them with a real beauty of texture and of surface and, more important even than these advantages, I could use more land and could develop it with beautiful gardens, with terraces near the building and other attractive details of architecture. I could then discard the usual blocky, flat-roofed mass, and I would break it up into a long, low, rambling varied country mansion type which harmonizes with the contours of the land and possesses the interest of long roof ridges, with gables, porches, terraces. In fact, I would design an apartment somewhat similar to one of our finest country houses, yet having a character of its own, a collection of duplex apartments, each with two or three exposures, and each enjoying a large measure of the individuality and homelike character of a single house." This sounds like a fairy story. It will be argued that such clients are rare; but, if the architect wishes such a clientele, he may find it in persuading a group of people to coöperate in financing and building their own homes.

The average "coöperative"-speculative apartment falls far short of this ideal, particularly in respect to room sizes, which are too small, and to the apartment's having too few rooms. It is a mistaken policy to encourage the sale of homes consisting of small 3-, 4- and 5-room apartments. Generally speaking, in the case of individual houses, 6 rooms are a minimum, as the Small House Service Bureau has found in designing homes for people of very limited means. How unsound, therefore, is the policy of persuading people of means to purchase apartments which are too small for permanent homes! The practice may have merit, but only in those few special cases which always occur in so vast a field as the suburban apartment covers.

Another desirable feature in suburban apartment house design is plenty of garden space. If there is any point in which the superior economy of the garden apartment is evident, as compared with the individual house, it is in the economy of the land cost per family. Nevertheless, one will often find that the suburban real estate man who is accustomed to developing residential sites for individual houses and who realizes that sufficient land

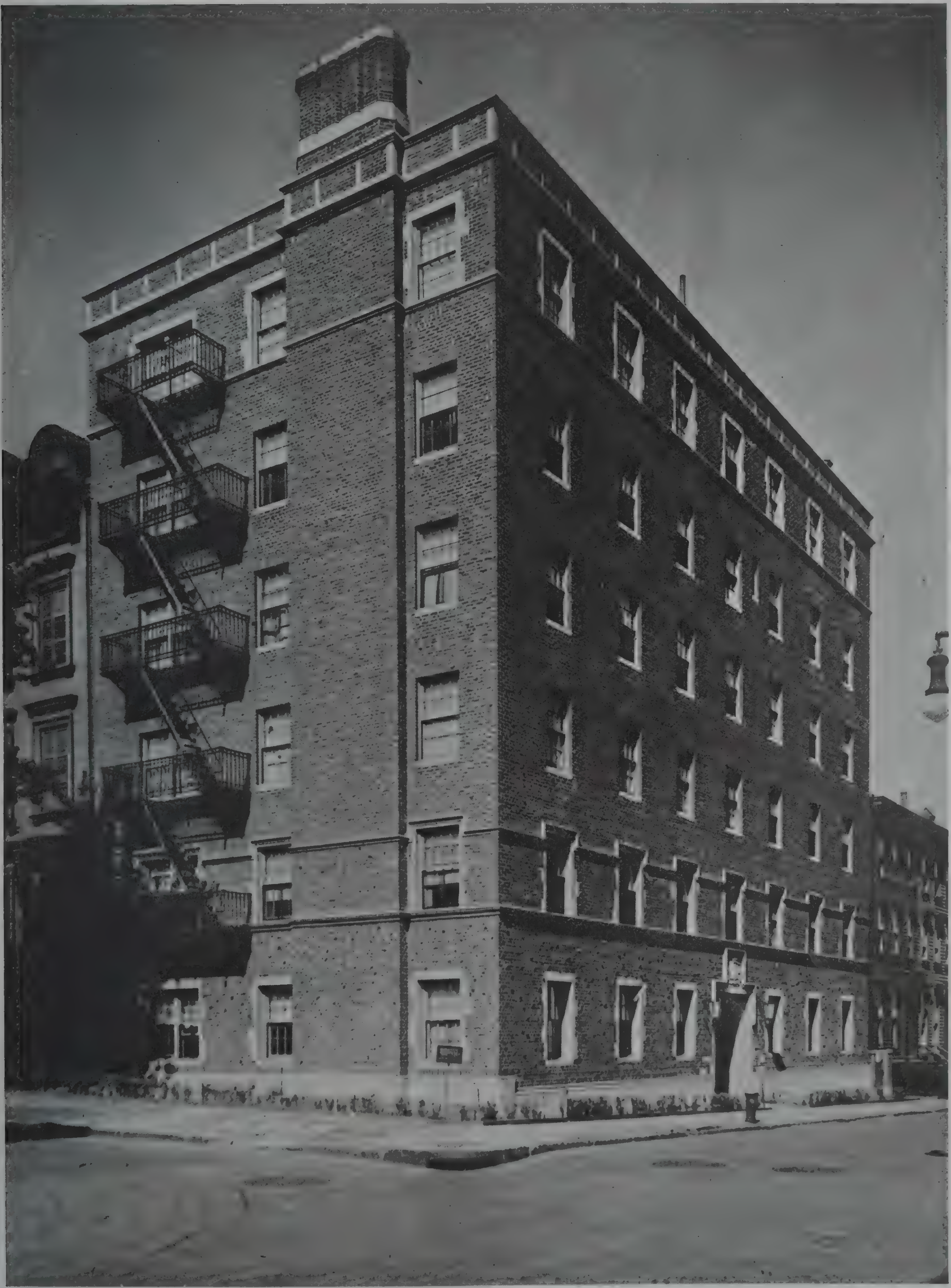


"Merestone Terrace," Bronxville, N. Y.
Penrose Stout, Architect

is required in order to attract home buyers,—that this same man, in considering an apartment project, jumps to the conclusion that every possible room must be crowded on the site, just as if it were in the most congested city district. The fact is, that when the apartment house is introduced into a district where land values are low because based on sites for individual homes, a large plot of land may be had at a price low enough to permit of a low percentage of covered area. The fatal error of overbuilding the land has probably done more to create and maintain the existing low standards of apartment house design than anything else. The fallacy of over-building the site with an apartment building is most clearly exposed by taking illustrations from industrial housing. Andrew J. Thomas has demonstrated in the cases of the Metropolitan Life Insurance Company's garden tenements and the Bayonne Housing Corporation's industrial garden tenements that a low percentage of coverage is practicable even where rentals of not more than $9 and $10 per room, including steam heat and hot water, are charged. The Metropolitan Life Insurance Company's housing occupies 50 per cent of the area, and the Bayonne housing only 36 per cent of the area. As a result, the workingman at Bayonne is actually far better housed than are nearly all apartment owners of a far richer class. If his room sizes are not quite so ample, on the other hand, his surroundings and garden outlook are infinitely superior. There are numerous sites for suburban apartments where the land values are considerably lower than at Bayonne, and this advantage, together with the higher rentals which can be had from a more prosperous class of tenants, will allow a much smaller covered area than 36 per cent. This simple truth is not grasped in real estate circles, but the architect should be thoroughly familiar with it. He should constantly study the ratios of land cost to building cost per family housed and to the cost per room. A little simple arithmetic will expose the flagrant financial error of over-building the lots in most apartment designs.

The interior decoration as well as the general arrangement of the individual apartment is open to vast improvement. I have mentioned some of the ways in which the apartment interior can be made to approach the attractiveness of the best single-family house models. It should be realized that the great strides which have been made in individual house design, together with the constant propaganda for interior decoration which is carried on in magazines of national importance and by a powerful press, form a factor which will force home owners (particularly women) to demand that architects break away from the uninteresting, stereotyped apartment house interior. One already hears complaint of the deadly monotony of the most luxurious New York apartments as found in the Park Avenue and Fifth Avenue districts. These apartment houses have, as a general rule, been so standardized by the speculative builder and by the large architectural offices that they are almost identical in arrangement and in every detail of finish and equipment. They lack the touch of home, appearing more like very expensive barracks. If there is anything that the apartment house interior needs, it is the touch of the skilled designer of individual houses. A few months ago I had occasion to inspect a new apartment house in Boston which had been designed by Parker, Thomas & Rice. It was well planned, and I could find only a comparatively small wastage of volume as compared with the most rigid standards such as obtain in the best apartment house practice. I was struck with its unusual home atmosphere. One could not point to any particular features except that, in an unobtrusive way, it showed refinement and charm and attractiveness,—the unmistakable touch of the accomplished, skilled house designer.

Nothing written of the suburban apartment would be complete without pointing out what is probably its greatest opportunity for architectural progress. This is the production of the garden apartment for workingmen. If there is any type of housing in which economy is a necessity, it is in wage earners' housing. Notwithstanding the arbitrary claims of those housing experts who favor the single-family house, it is certain that, before many years, large numbers of wage earners in our industrial centers will be housed in apartments. This represents probably the largest uncultivated field still open to architects in this country, and the proper development of this field is a heavy responsibility devolving on architects. Today the workingman does not even know what architecture means. He is condemned to living in the shoddiest types of speculative housing, those familiar frame firetraps, the individual houses, two-family houses, tenements or New England three-deckers. They are nearly always of degraded types of architecture. The economic waste involved in producing them at the existing high level of costs is prodigious, and it is inexcusable. All these are types of housing which help to create slums. This architectural deterioration reacts unfavorably on all architecture and on the work of all classes of architects. In a democracy no profession can become soundly established unless it can render service to the majority of the people. Architecture is no exception to this rule, and it must find a way to improve the standards of the homes of the people. They offer as wide a field of opportunity as any in point of volume of building construction, and they offer by far the largest field for professional service. If the architectural profession cannot find a way to extend its service into this field, inevitably some other stronger agency will perform the task. A failure to dominate the field of the suburban apartment would mean a setback to the phenomenal march of progress in the last 25 years from which architecture might not soon recover.

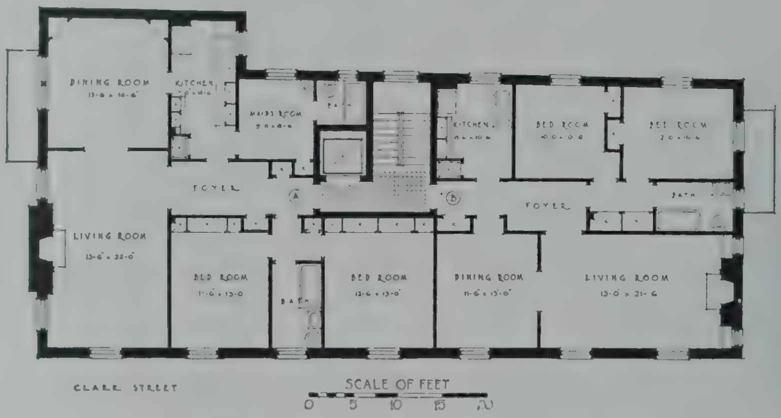


Photos. George H. Van Anda

Plans on Back

BROOKLYN HEIGHTS APARTMENTS, BROOKLYN

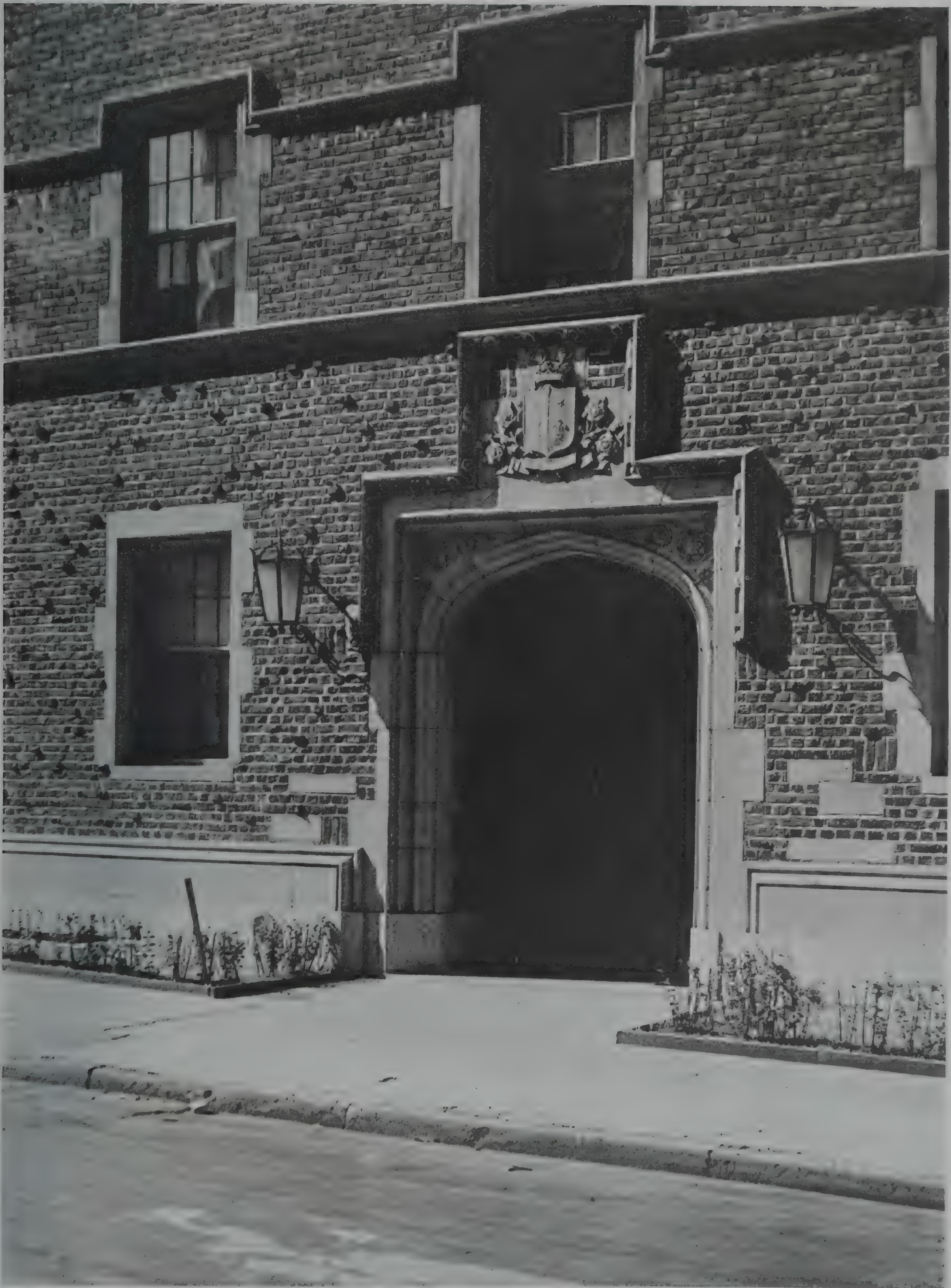
DANIEL D. MERRILL, ARCHITECT



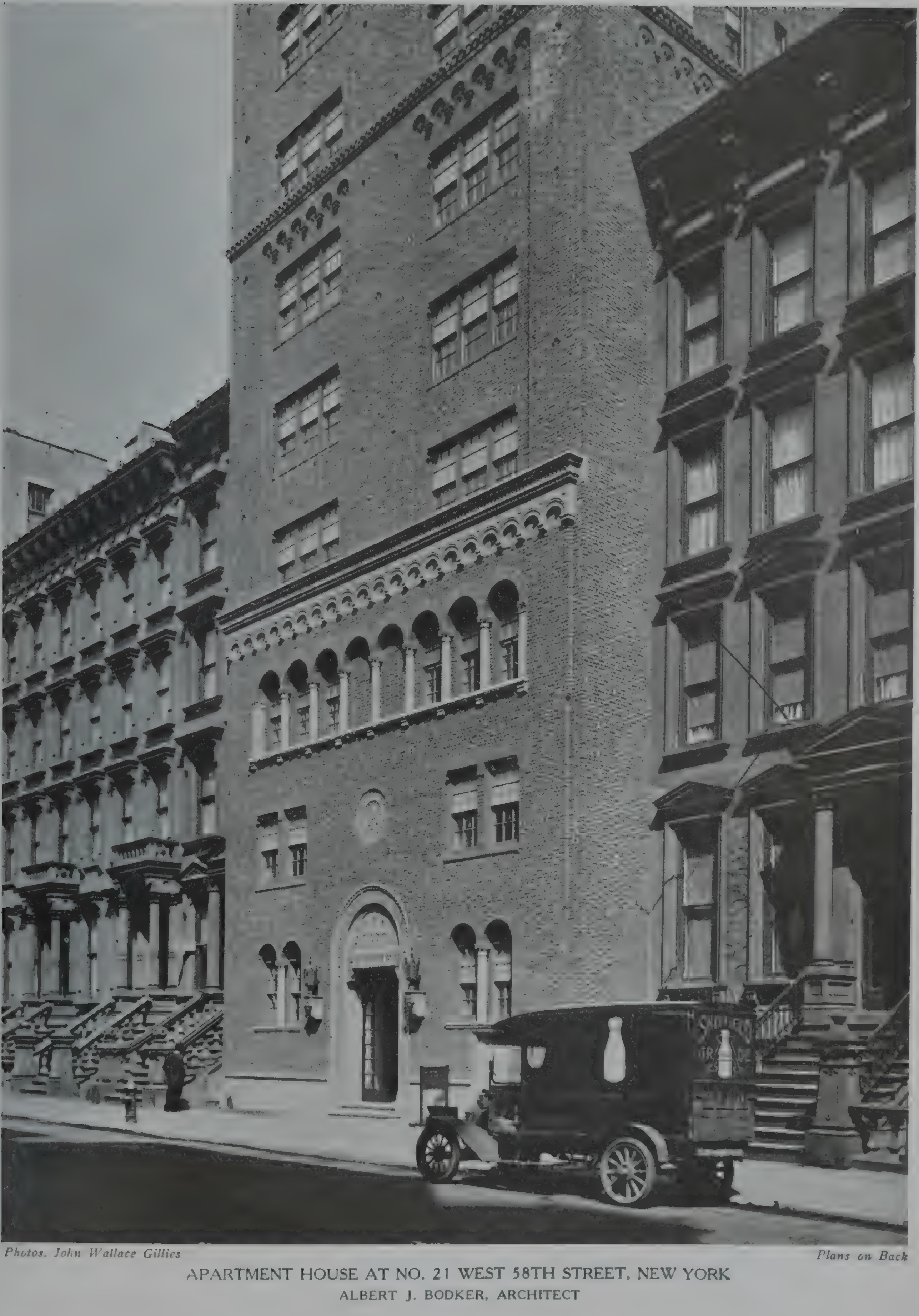
A TYPICAL FLOOR

BROOKLYN HEIGHTS APARTMENTS, BROOKLYN

DANIEL D. MERRILL, ARCHITECT



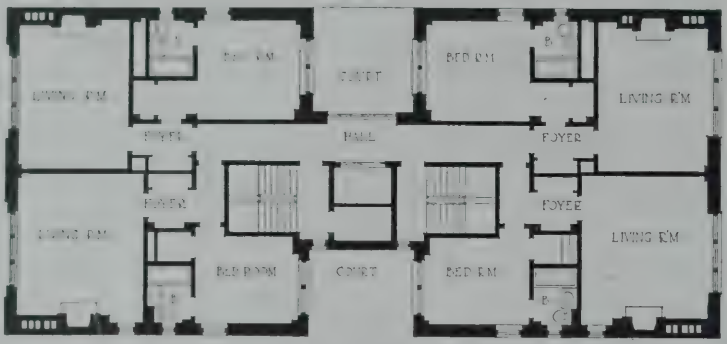
DETAIL, BROOKLYN HEIGHTS APARTMENTS, BROOKLYN
DANIEL D. MERRILL, ARCHITECT



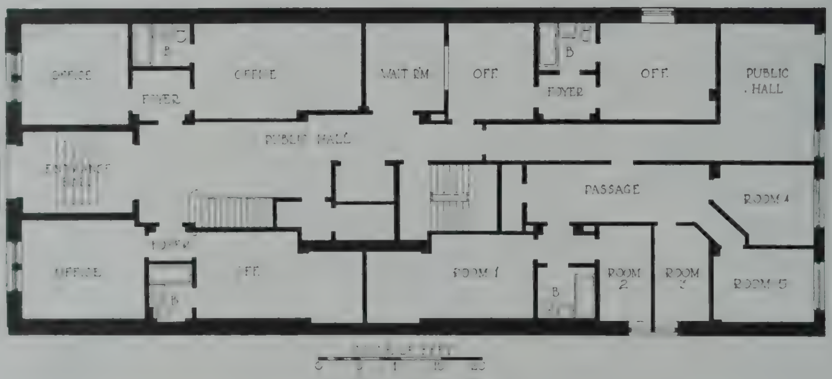
Photos. John Wallace Gillies

Plans on Back

APARTMENT HOUSE AT NO. 21 WEST 58TH STREET, NEW YORK
ALBERT J. BODKER, ARCHITECT



A TYPICAL FLOOR

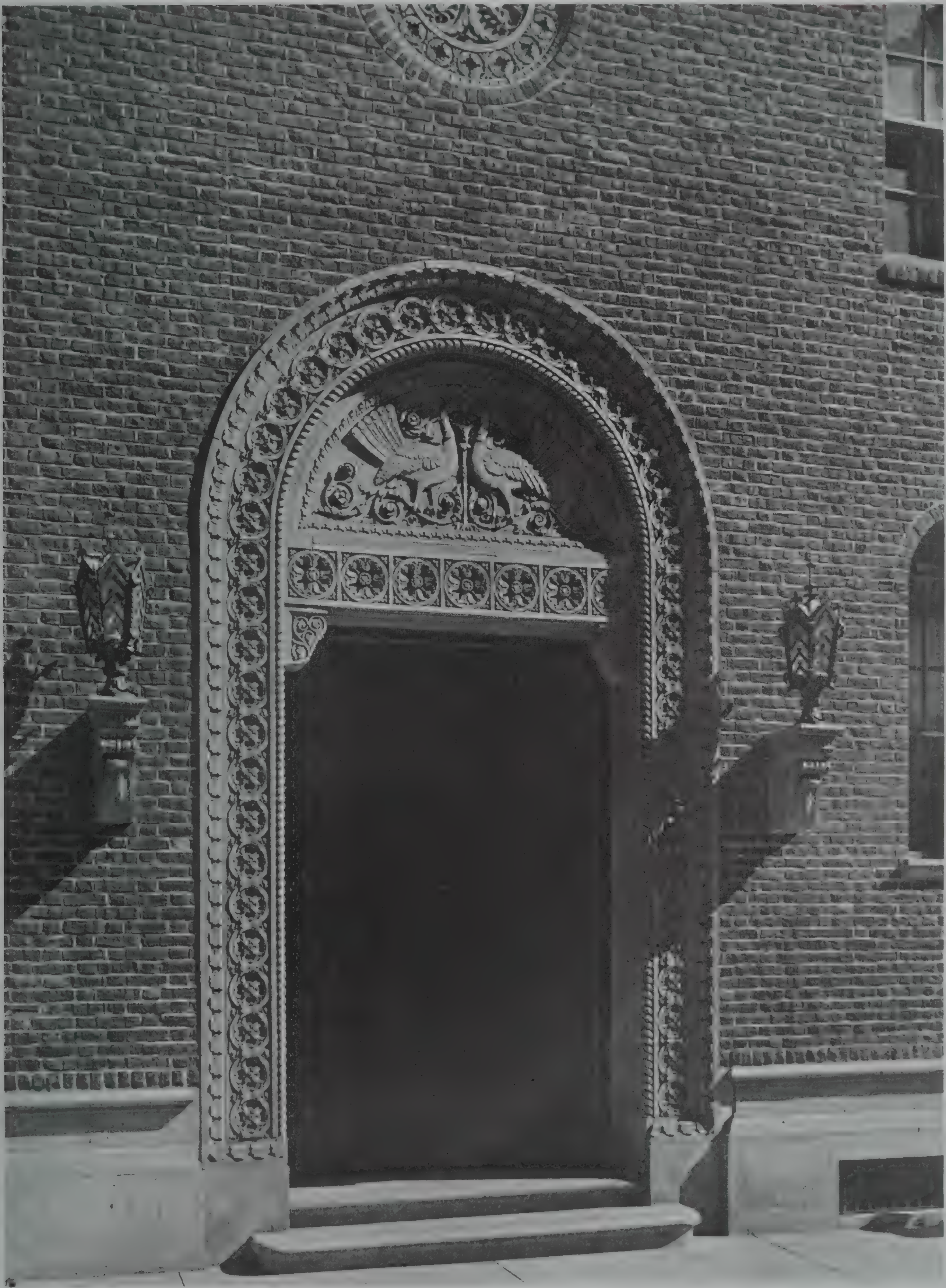


MAIN FLOOR

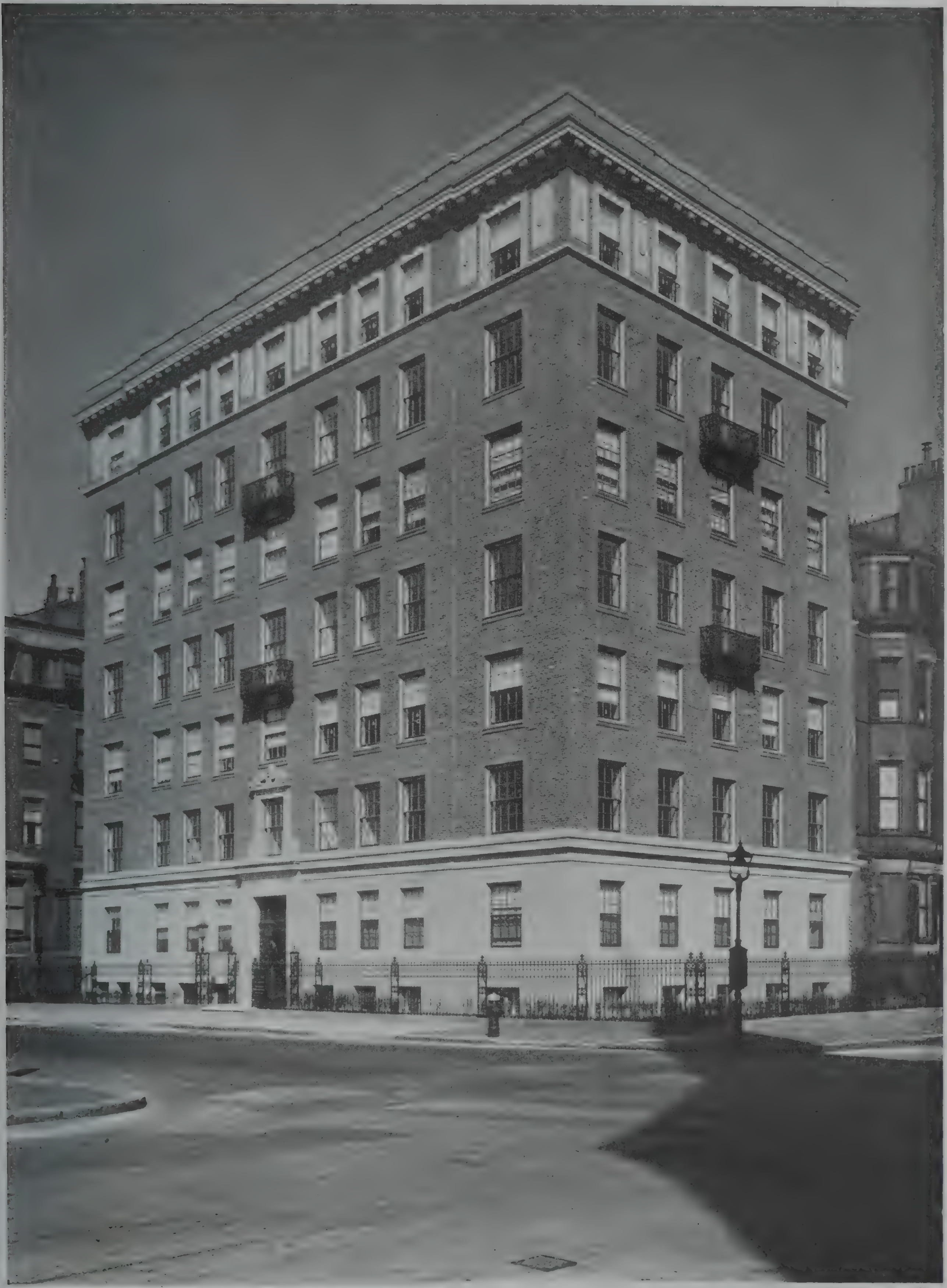
APARTMENT HOUSE AT NO. 21 WEST 58TH STREET, NEW YORK

ALBERT J. BODKER, ARCHITECT

LIBRARY



DETAIL, APARTMENT HOUSE AT NO. 21 WEST 58TH STREET, NEW YORK
ALBERT J. BODKER, ARCHITECT

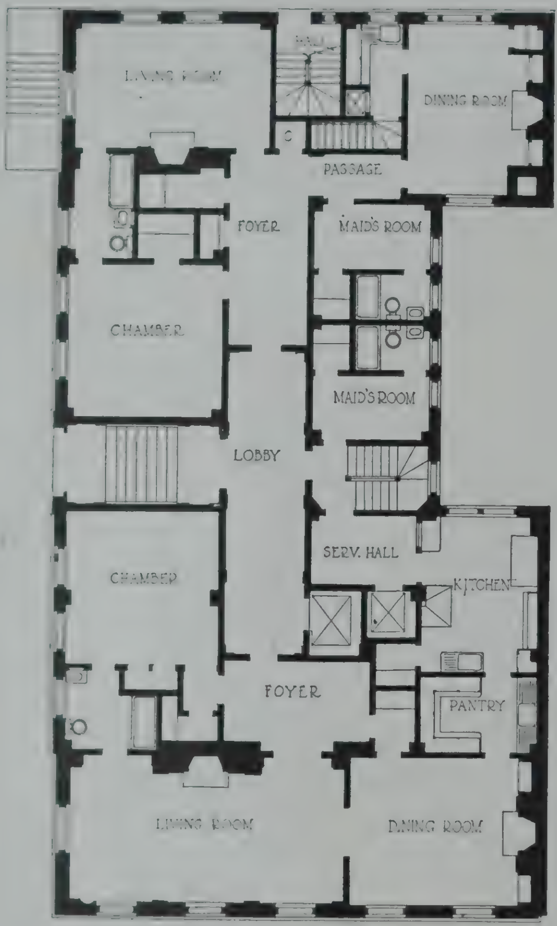


Photos. Paul J. Weber

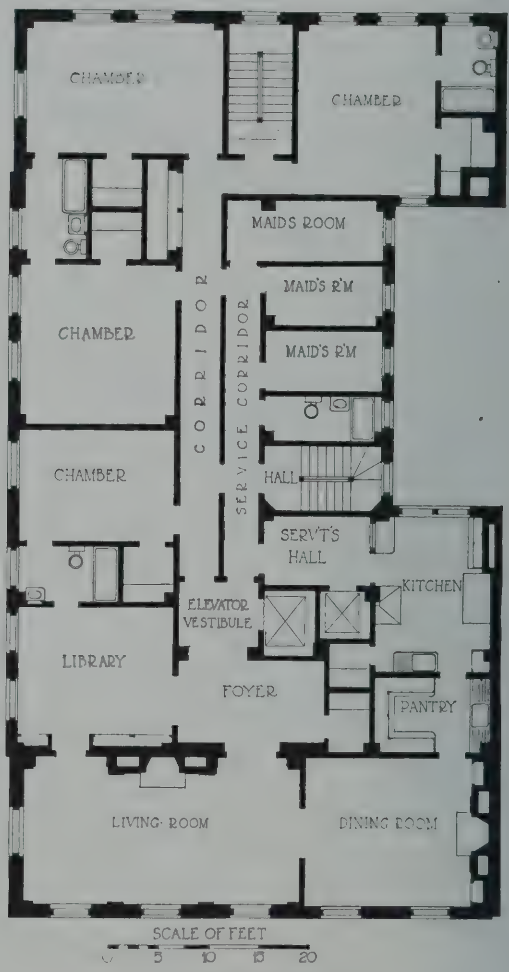
Plans on Back

CORNER BERKELEY AND MARLBOROUGH STREETS, BOSTON

PARKER, THOMAS & RICE, ARCHITECTS



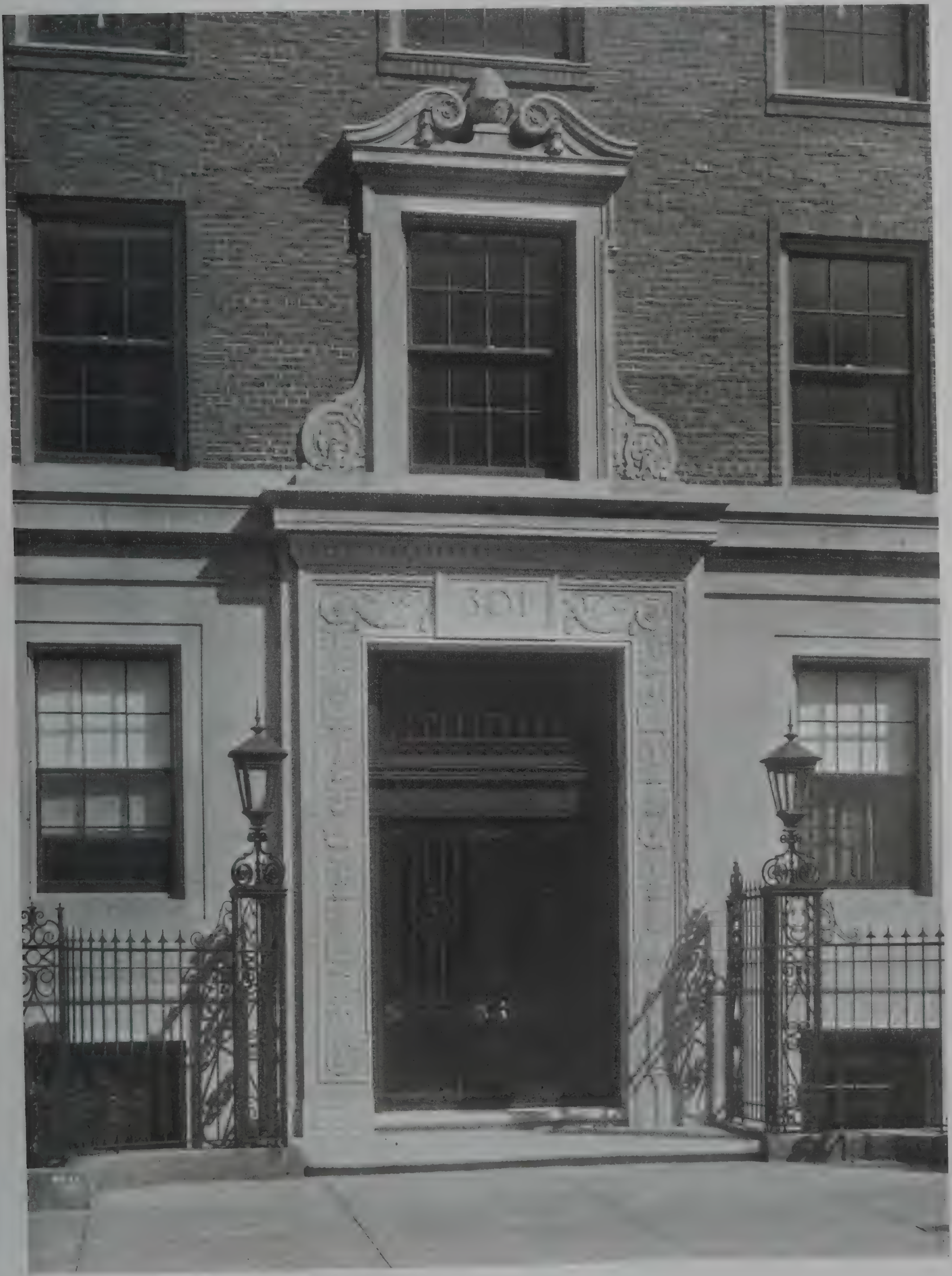
MAIN FLOOR



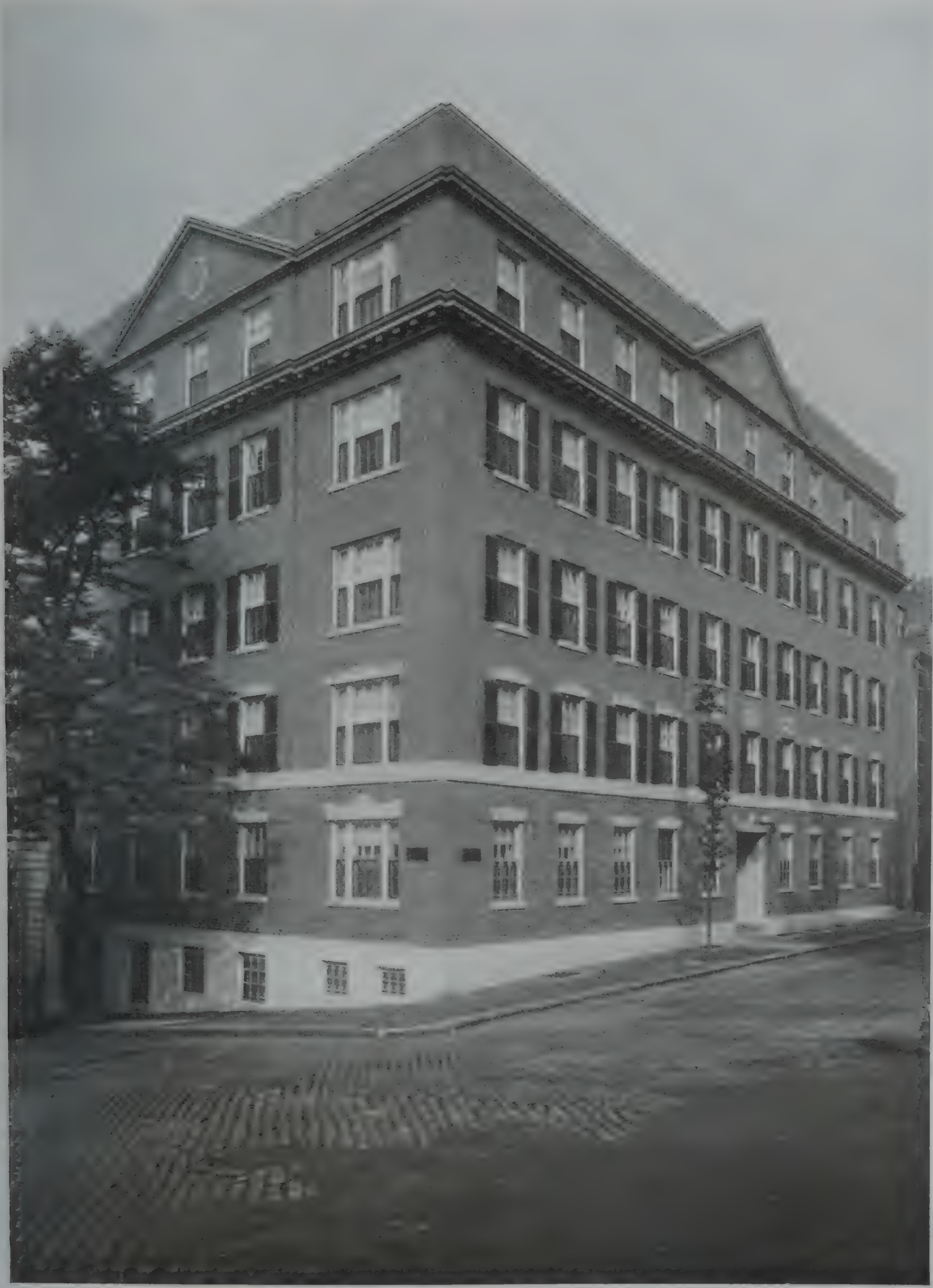
A TYPICAL FLOOR

CORNER BERKELEY AND MARLBOROUGH STREETS, BOSTON

PARKER, THOMAS & RICE, ARCHITECTS



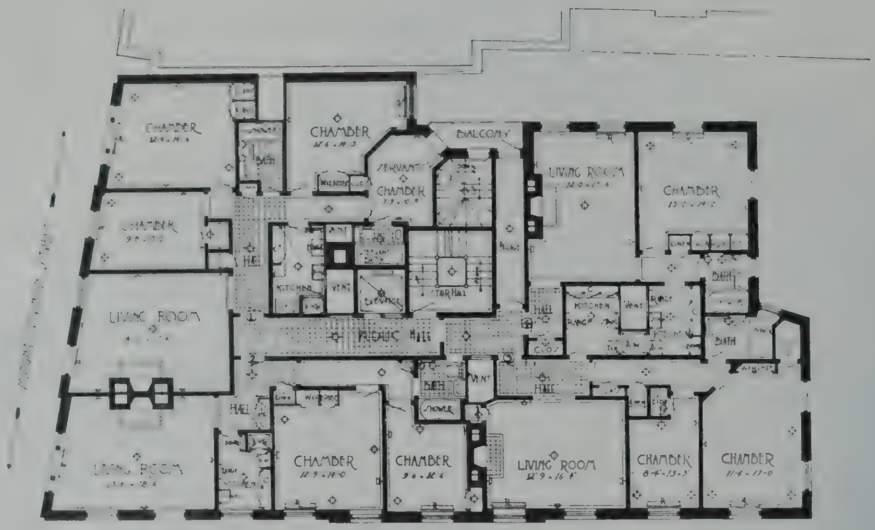
DETAIL, CORNER BERKELEY AND MARLBOROUGH STREETS, BOSTON
PARKER, THOMAS & RICE, ARCHITECTS



Photos. Paul J. Weber

Plans on Back

NO. 97 MOUNT VERNON STREET, BOSTON
EDWARD B. STRATTON, ARCHITECT



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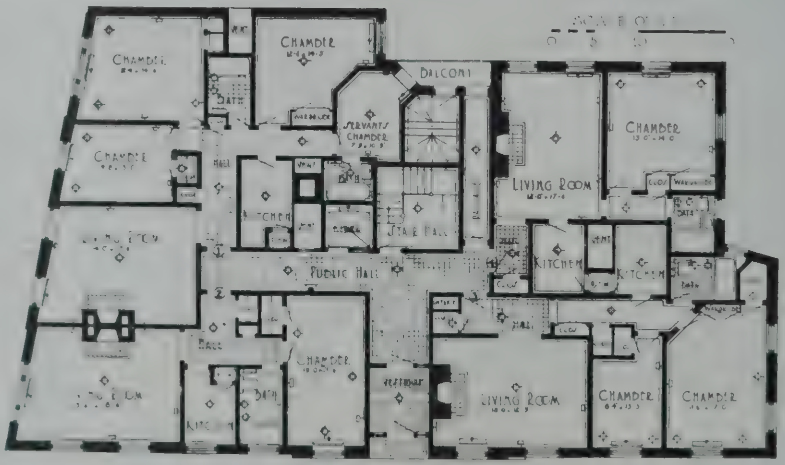

GROUND FLOOR

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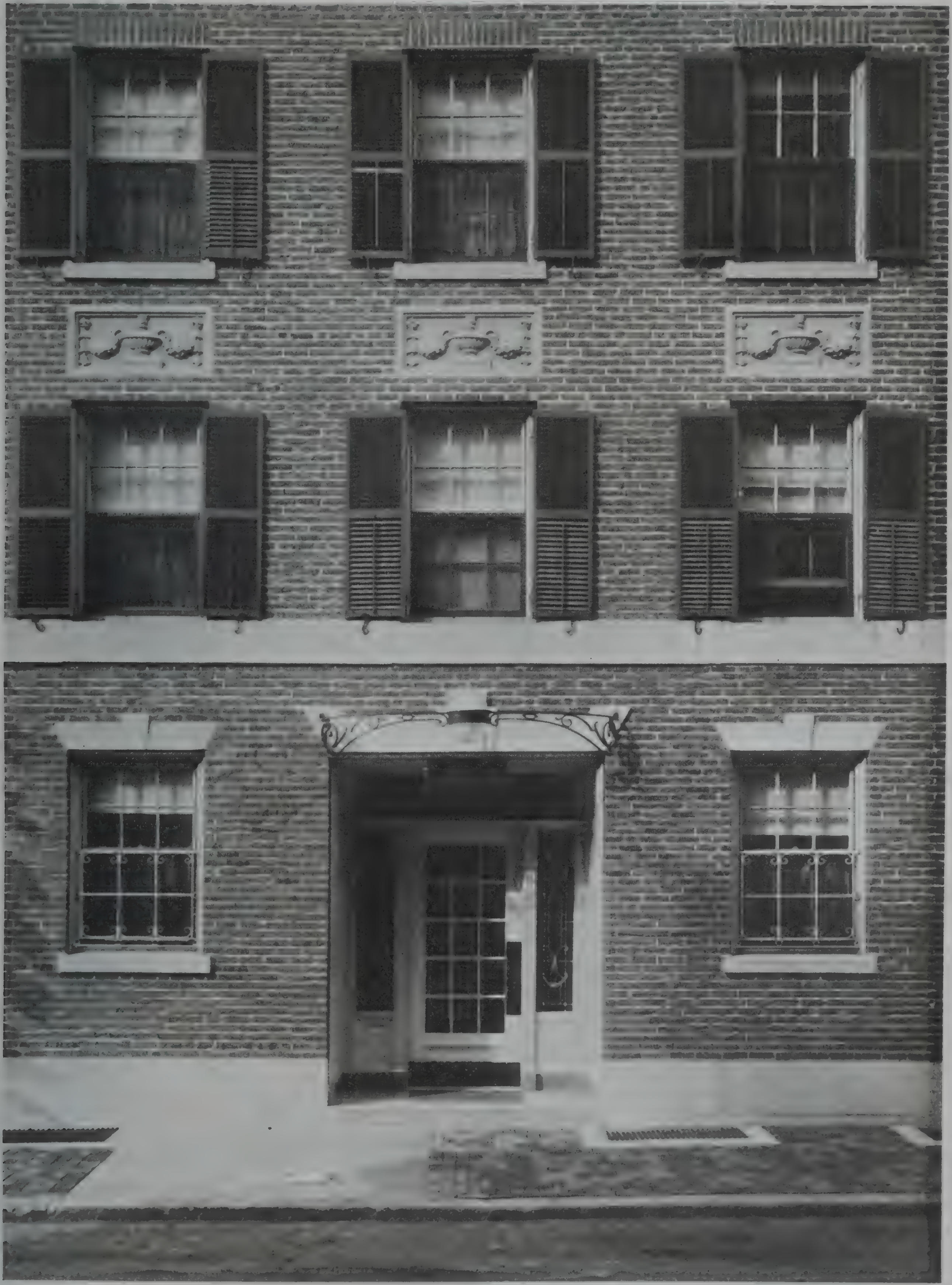
EDWARD B. STRATTON, ARCHITECT



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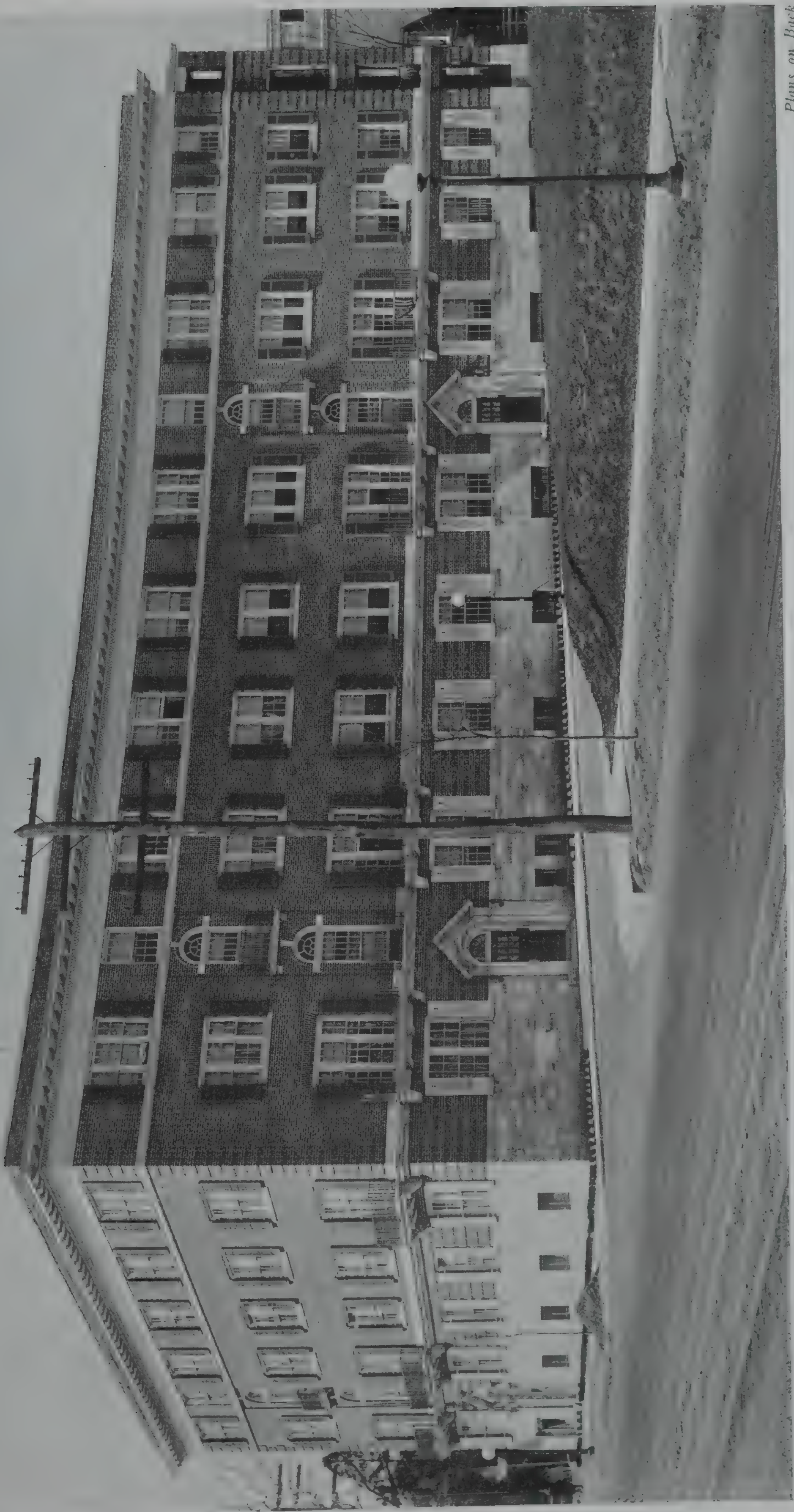
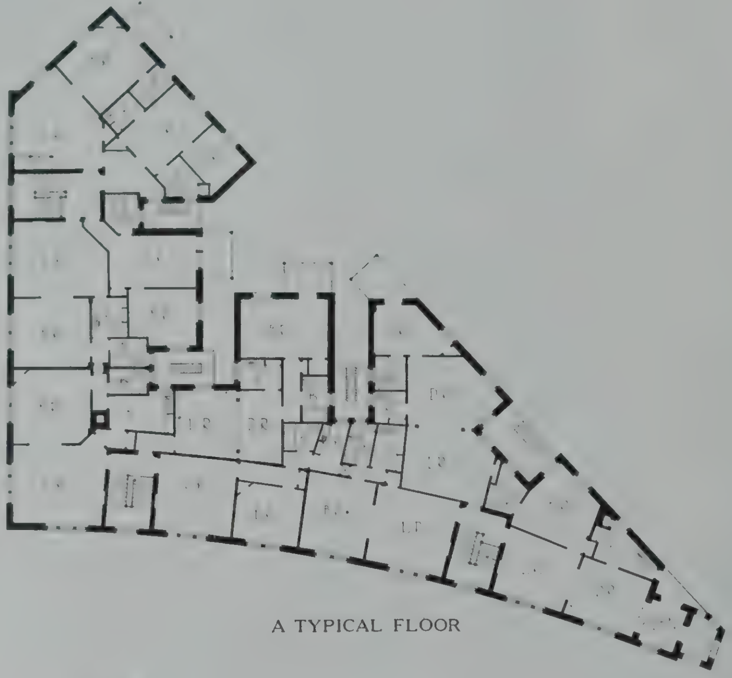
EDWARD B. STRATTON, ARCHITECT



Plans on Back

GUILFORD MANOR APARTMENTS, BALTIMORE

EDWARD L. PALMER, JR., ARCHITECT



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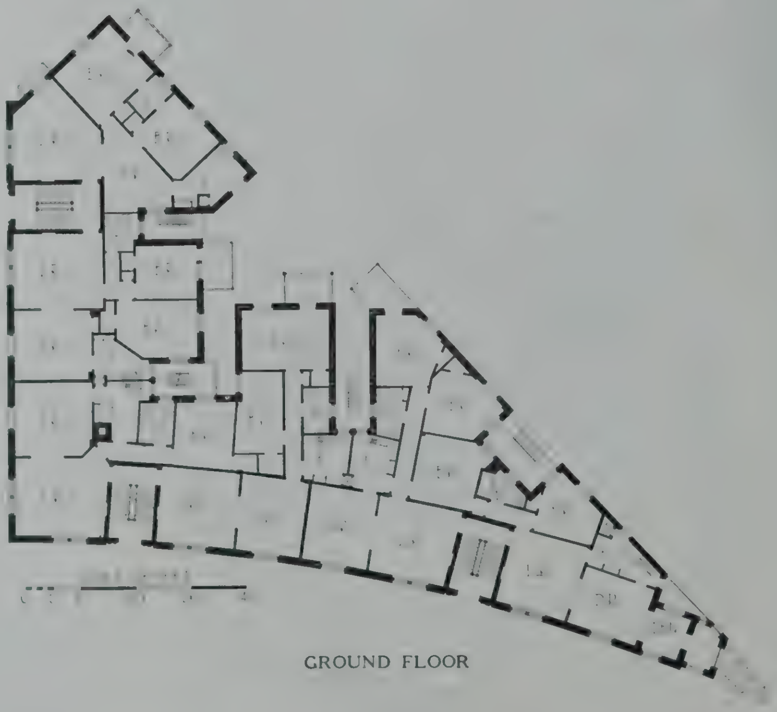

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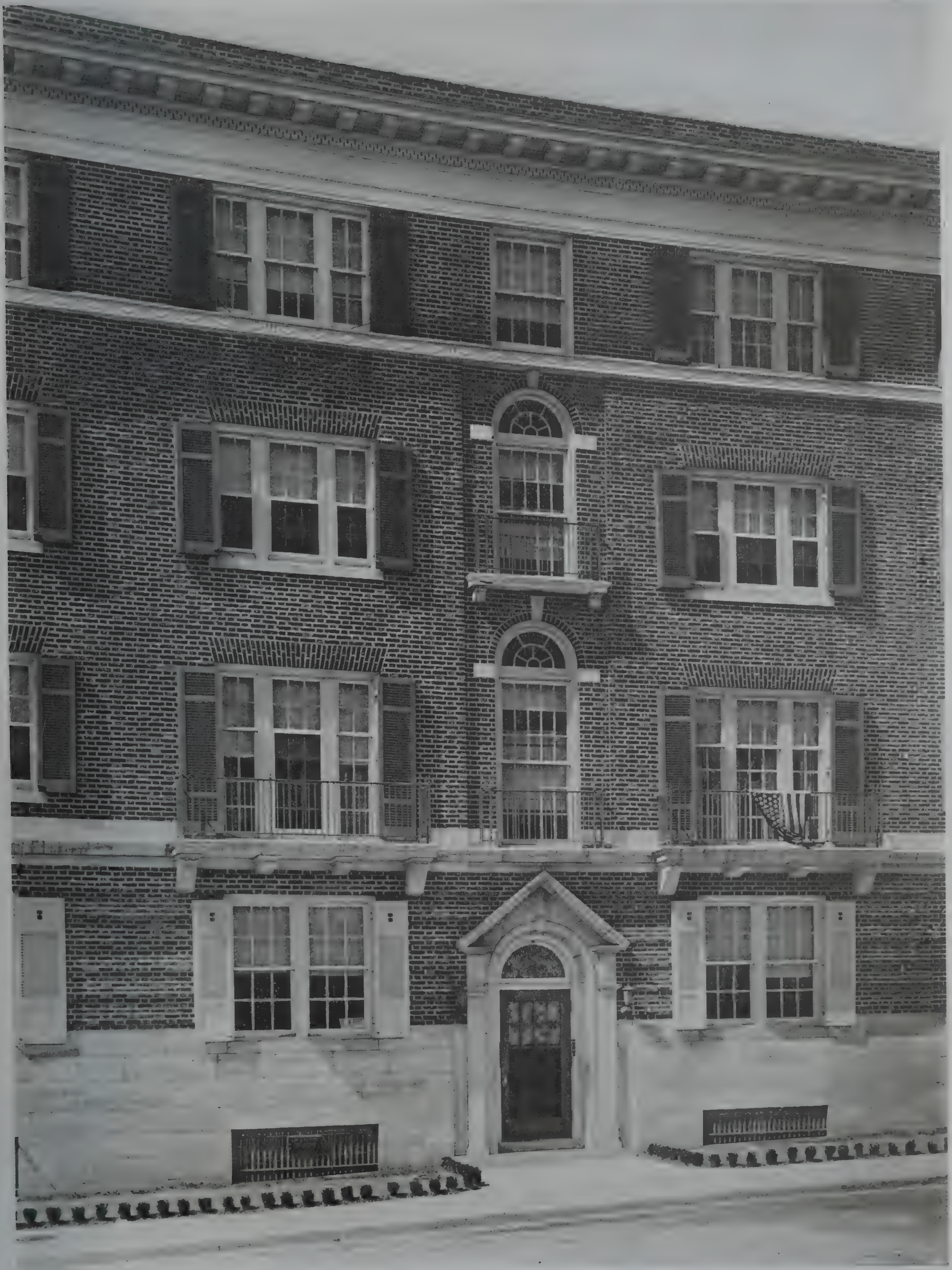
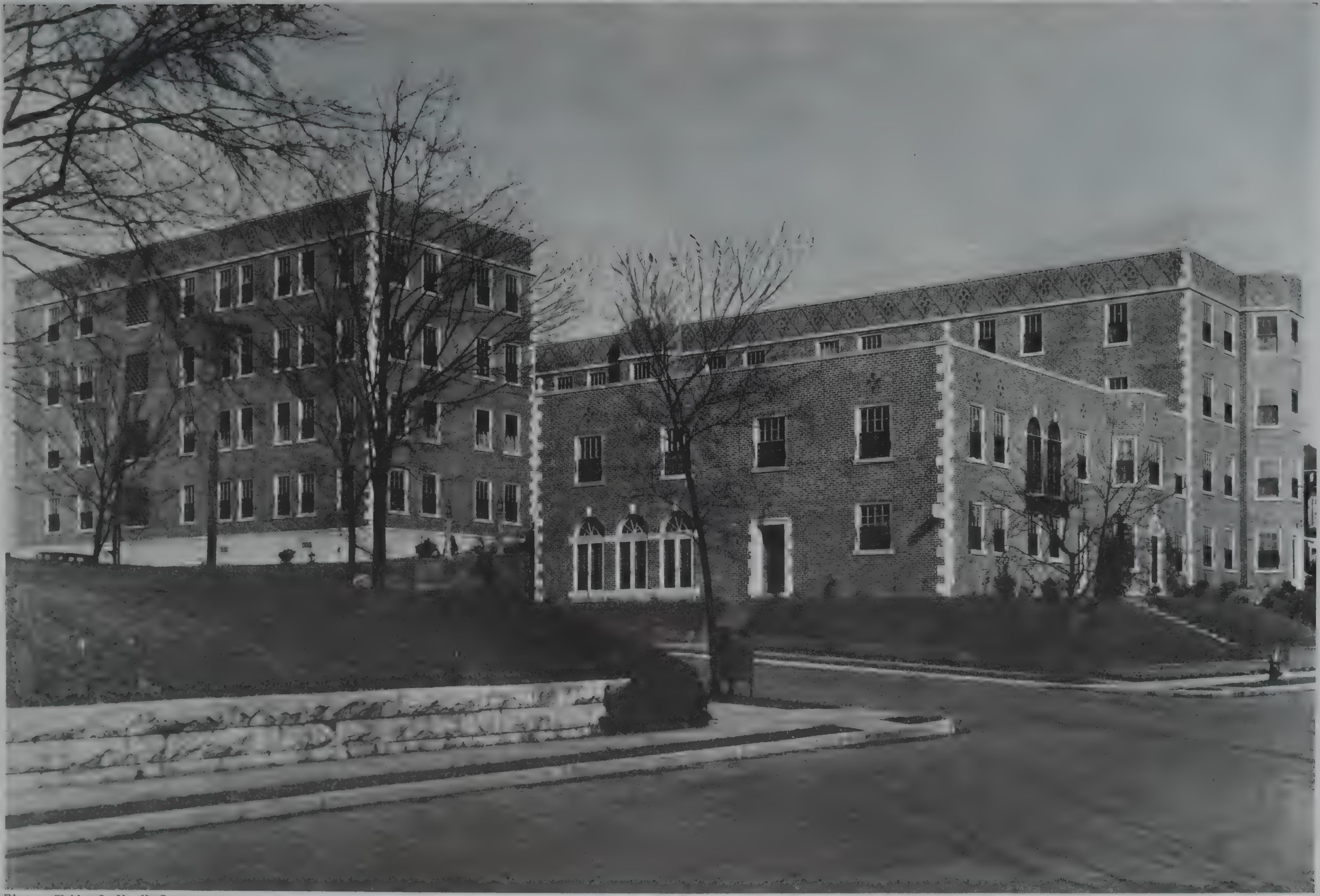
GUILFORD MANOR APARTMENTS, BALTIMORE

EDWARD L. PALMER, JR., ARCHITECT



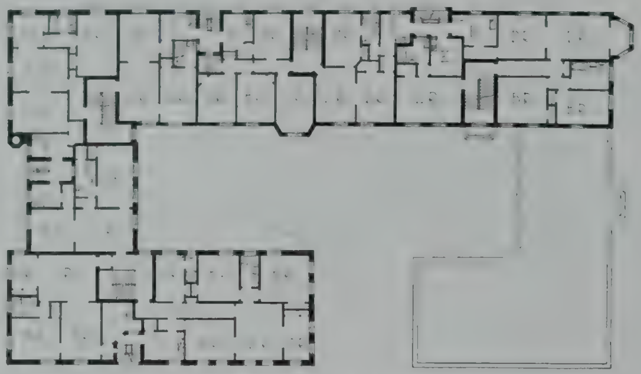
DETAIL, GUILFORD MANOR APARTMENTS, BALTIMORE
EDWARD L. PALMER, JR., ARCHITECT



Photos. Tebbs & Knell, Inc.

Plans on Back

FORT SANDERS MANOR, KNOXVILLE, TENN.
BARBER & McMURRAY, ARCHITECTS



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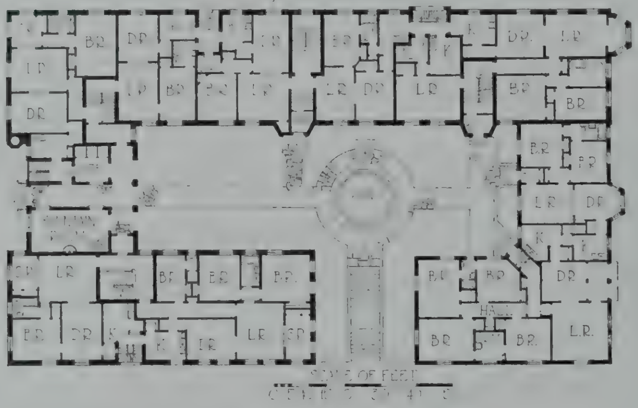
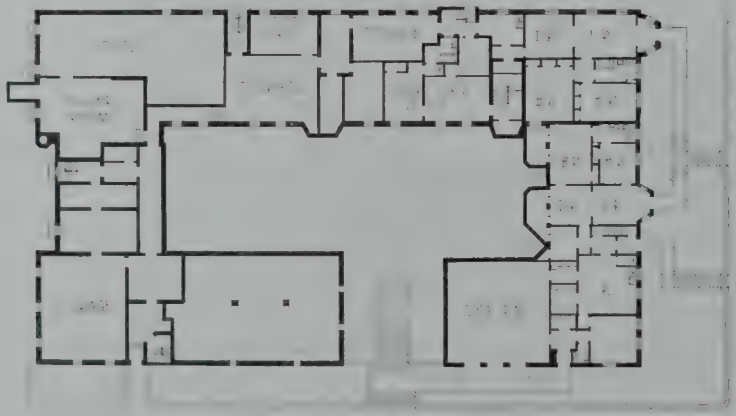


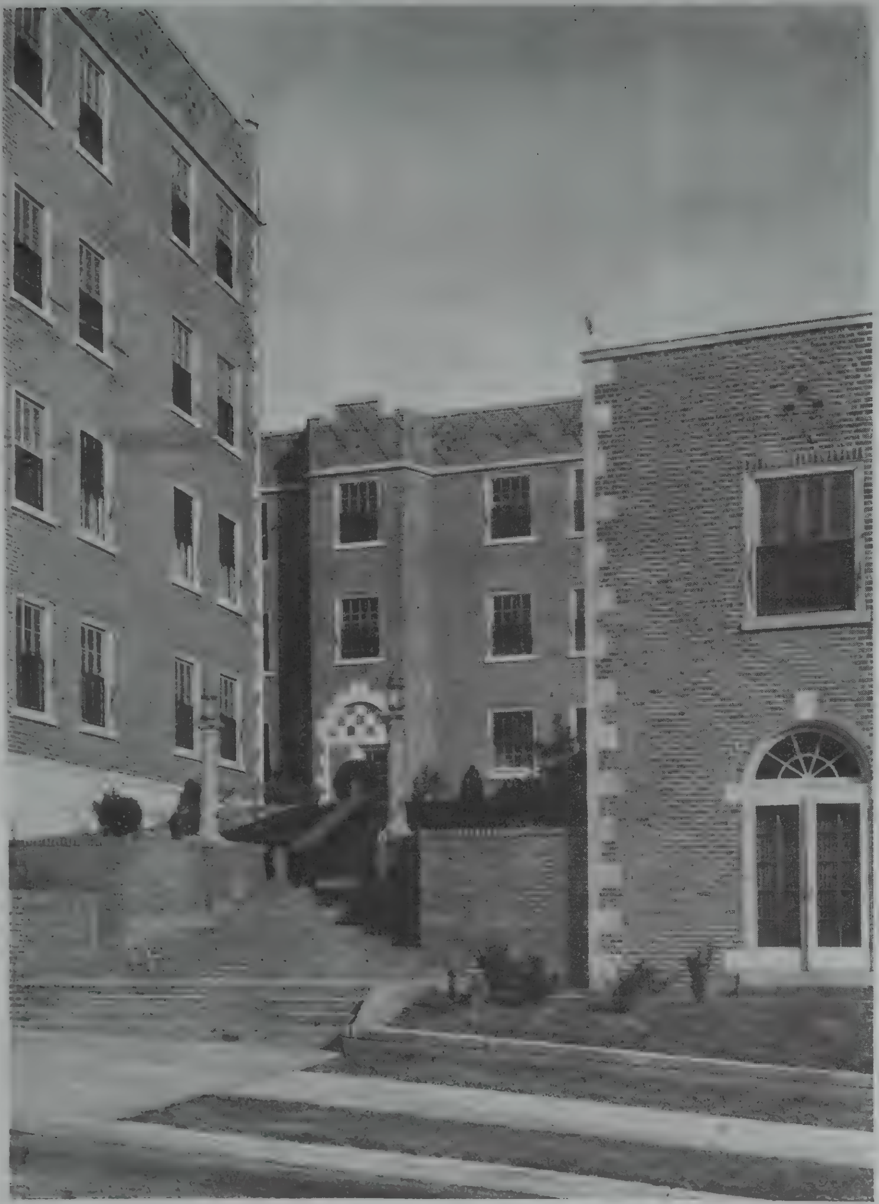
MAIN FLOOR



GROUND FLOOR

FORT SANDERS MANOR, KNOXVILLE, TENN.

BARBER & McMURRAY, ARCHITECTS



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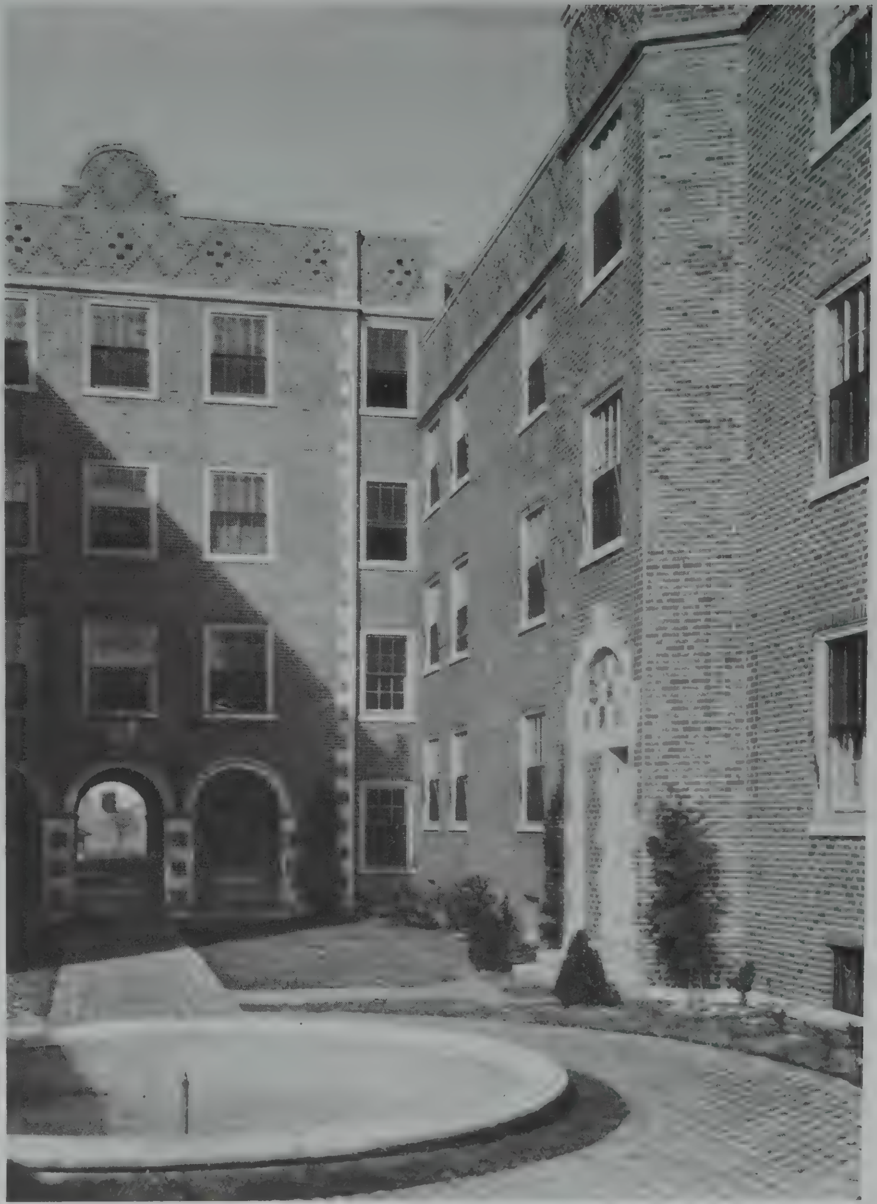
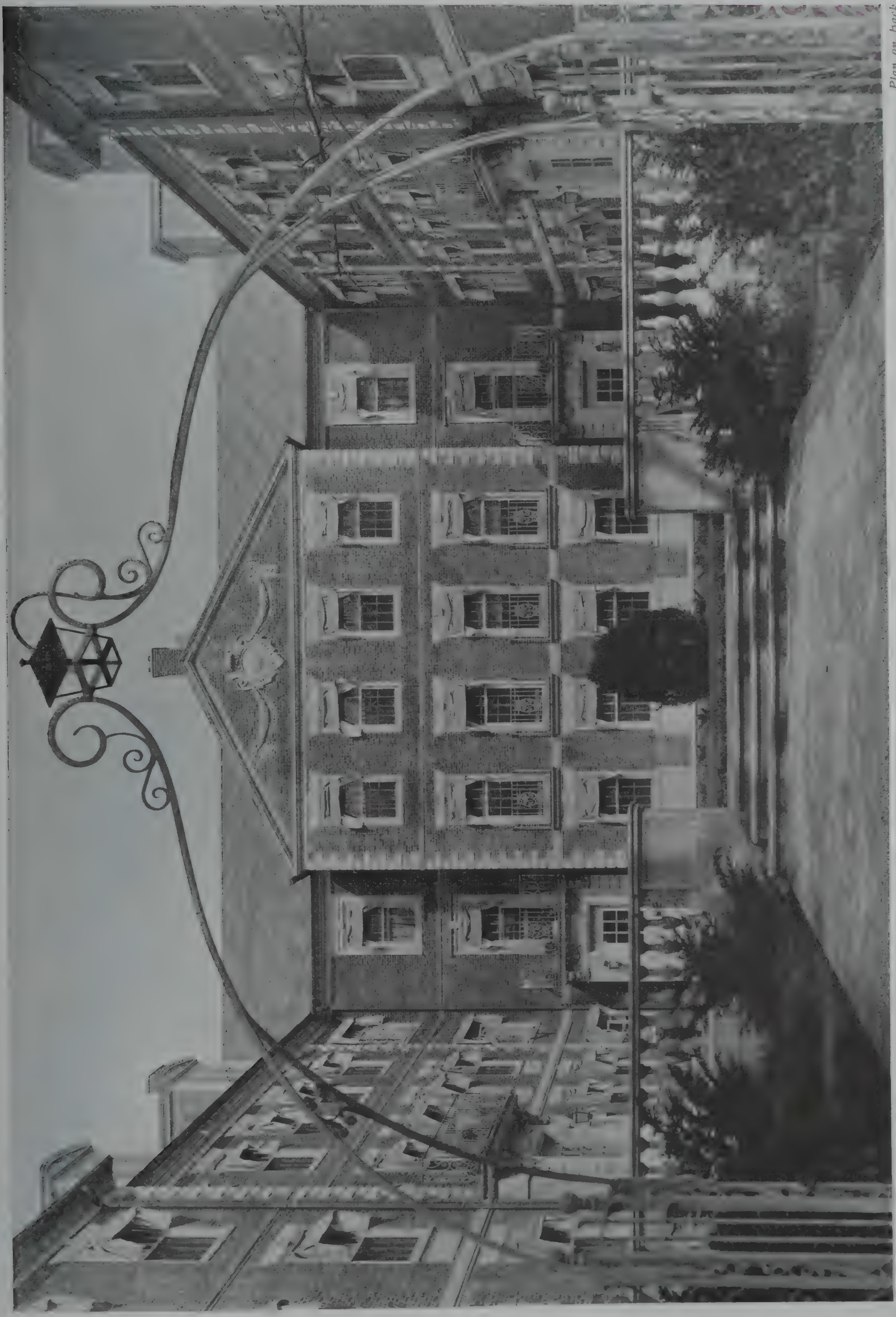


DETAIL, INTERIOR COURT

FORT SANDERS MANOR, KNOXVILLE, TENN.

BARBER & McMURRAY, ARCHITECTS

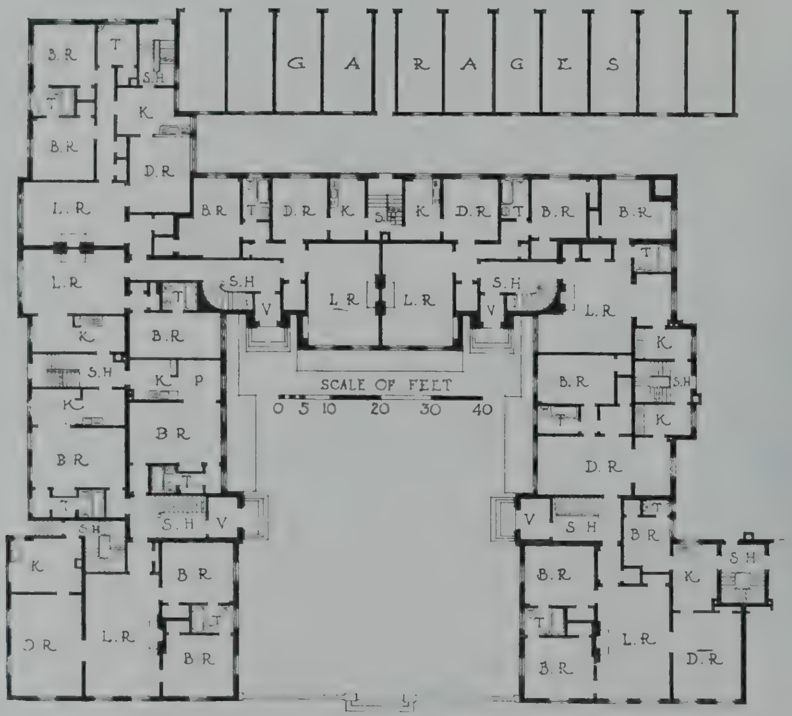
BOSTON PUBLIC LIBRARY



Plan on back

LATHAM APARTMENTS, COLUMBUS, O.
MILLER & REEVES, ARCHITECTS

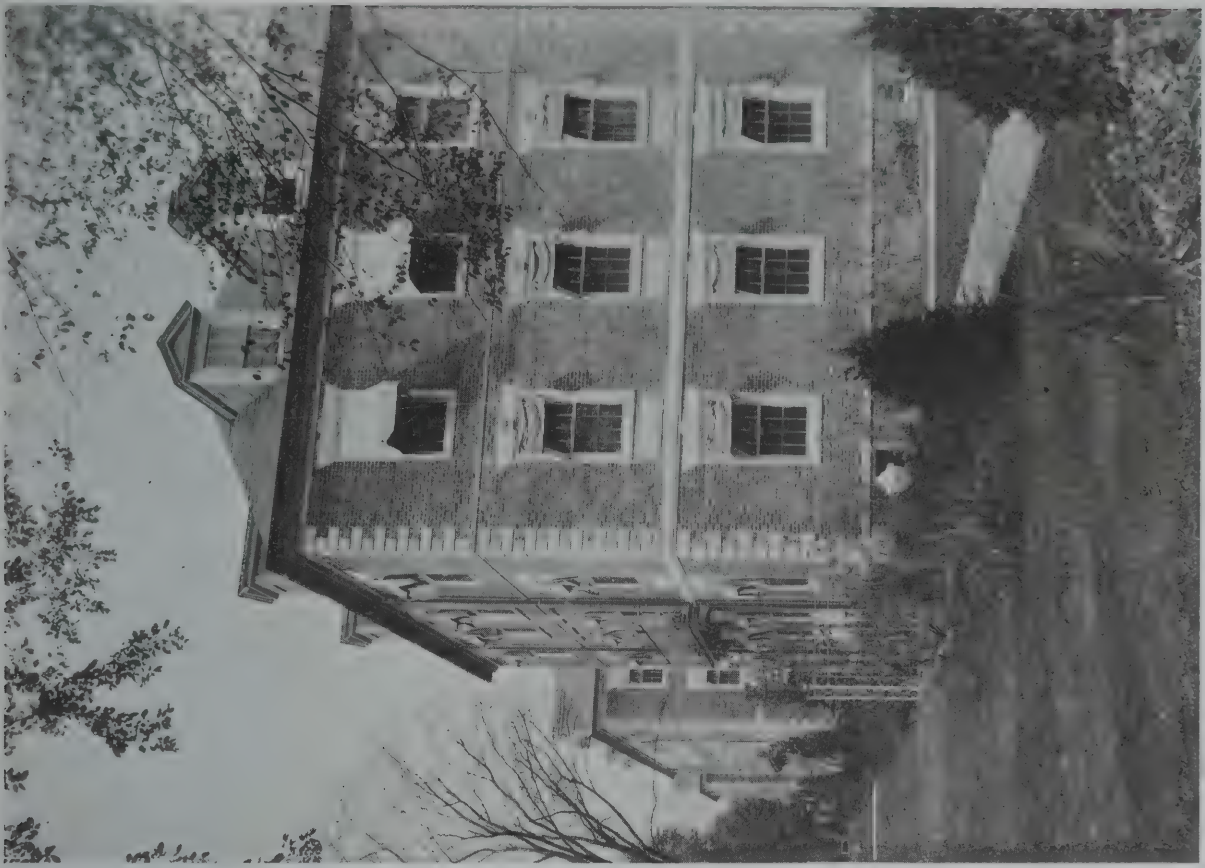
Photos. Rager Photographic Co.



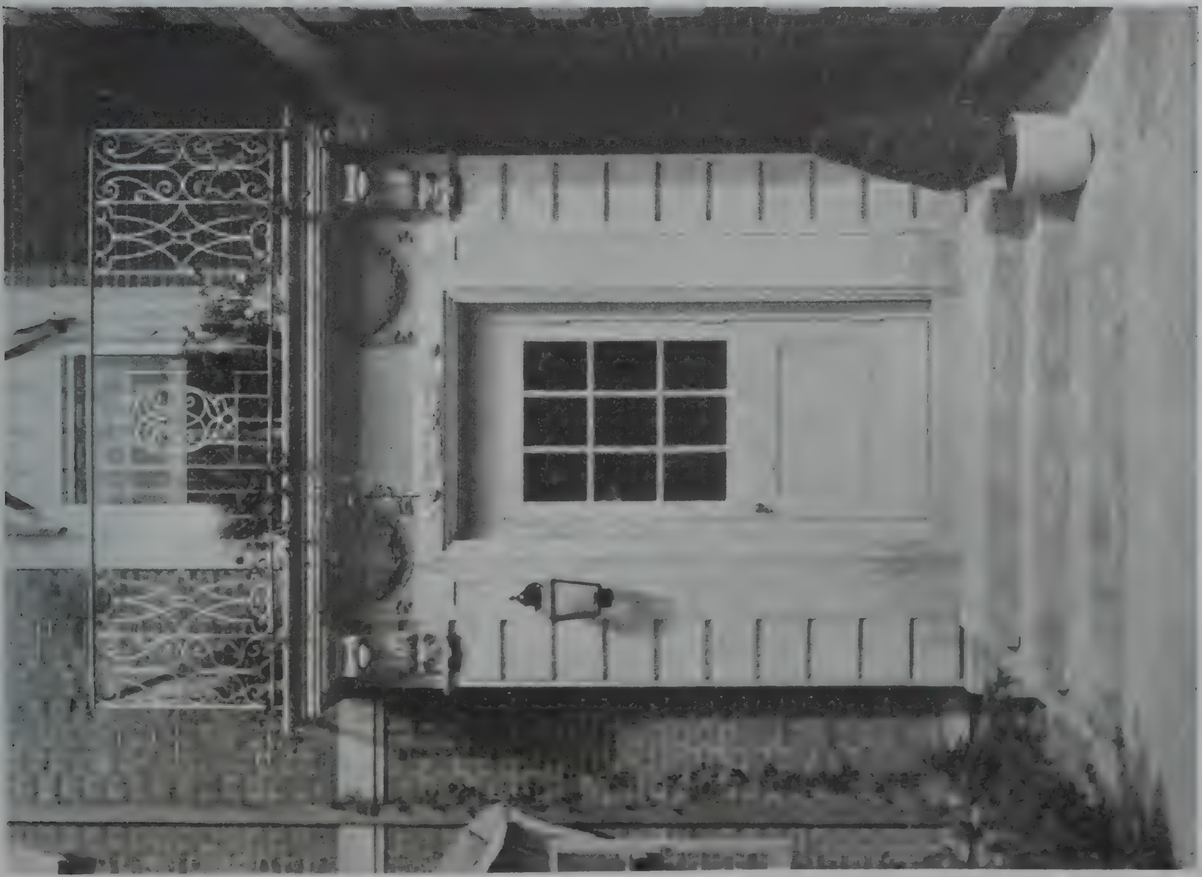
GROUND FLOOR

LATHAM APARTMENTS, COLUMBUS, O.

MILLER & REEVES, ARCHITECTS

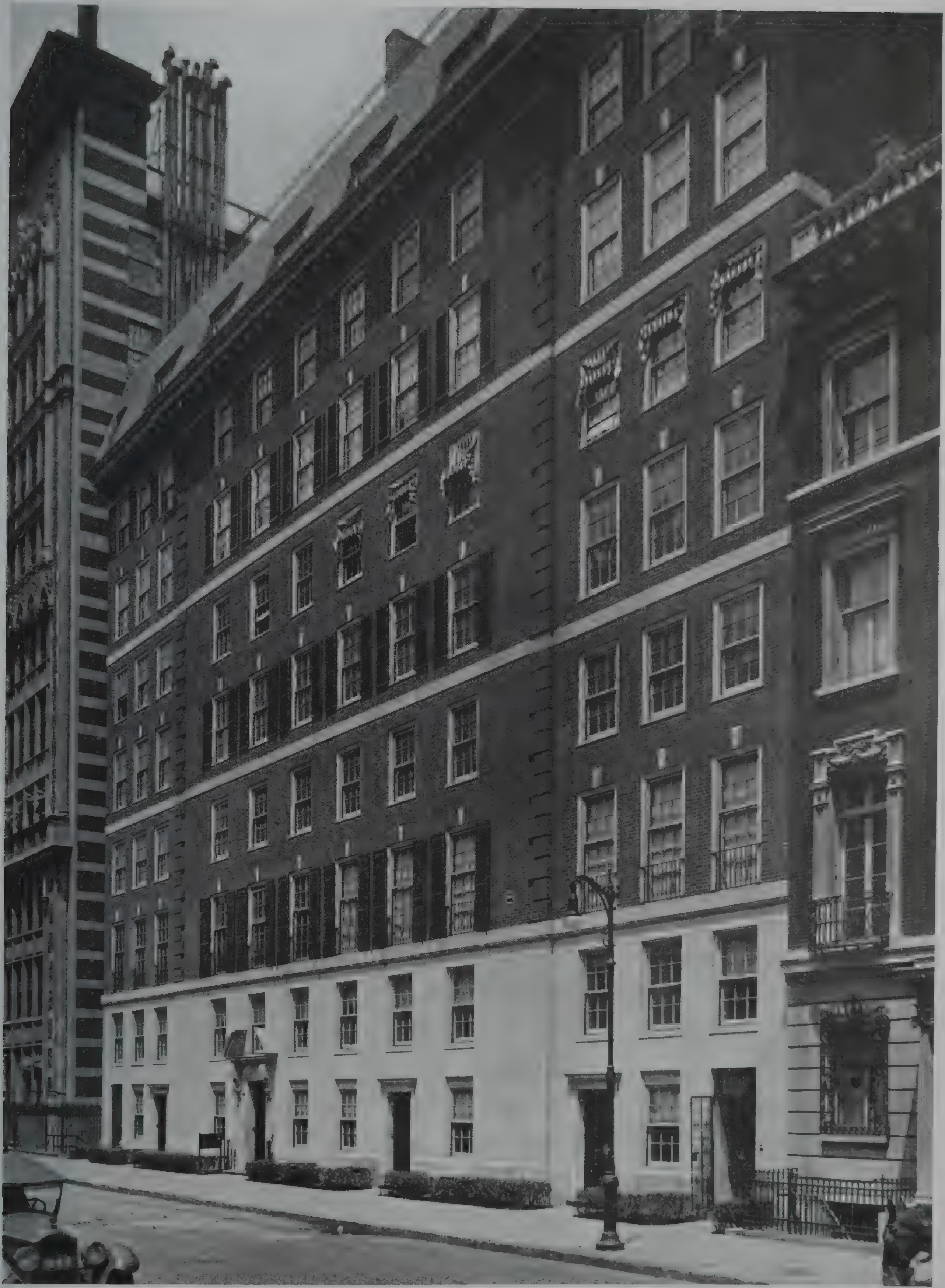


END ELEVATION



DETAIL, ENTRANCE DOOR

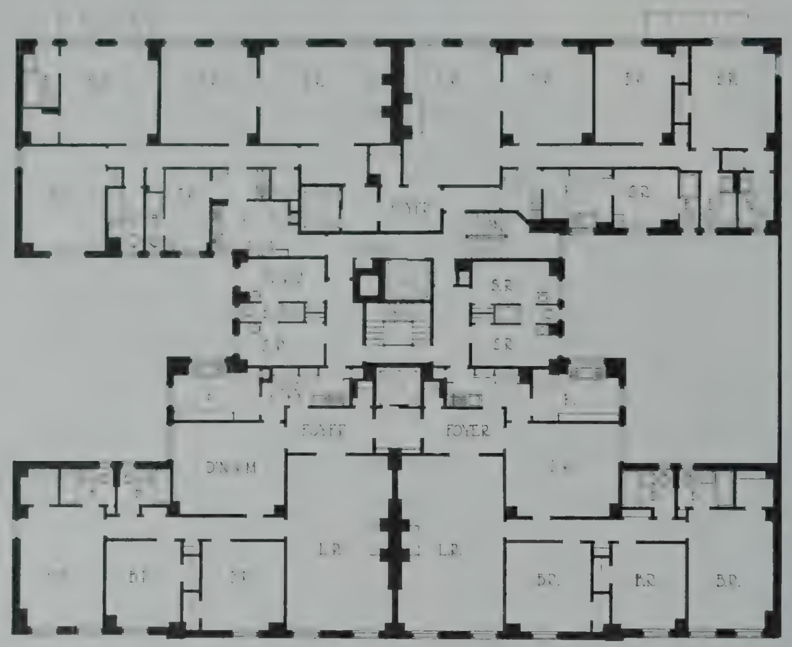
LATHAM APARTMENTS, COLUMBUS, O.
MILLER & REEVES, ARCHITECTS



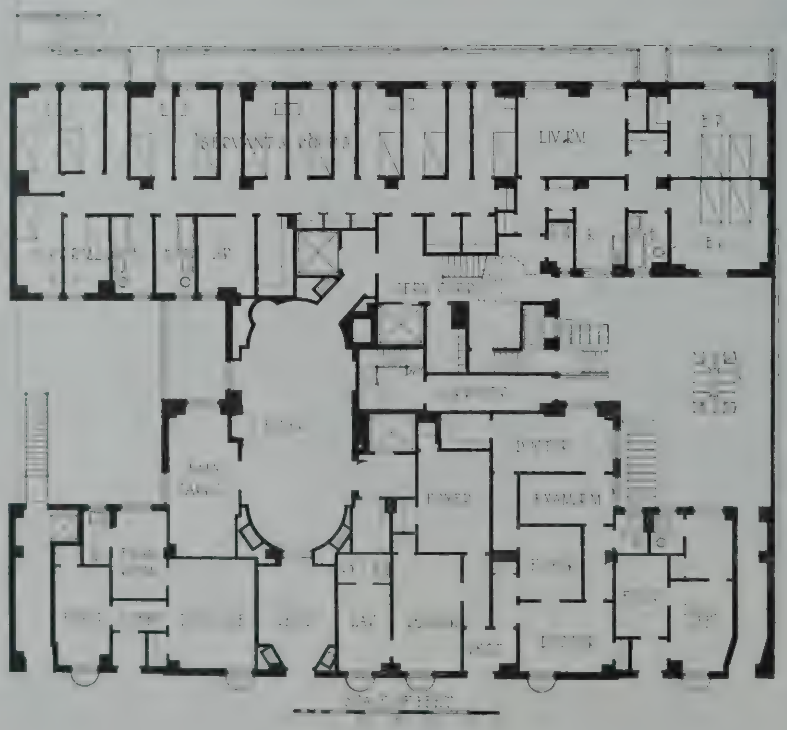
Photos. George H. Van Anda

Plans on Back

NO. 53 EAST 66TH STREET, NEW YORK
MOTT B. SCHMIDT, ARCHITECT



A TYPICAL FLOOR

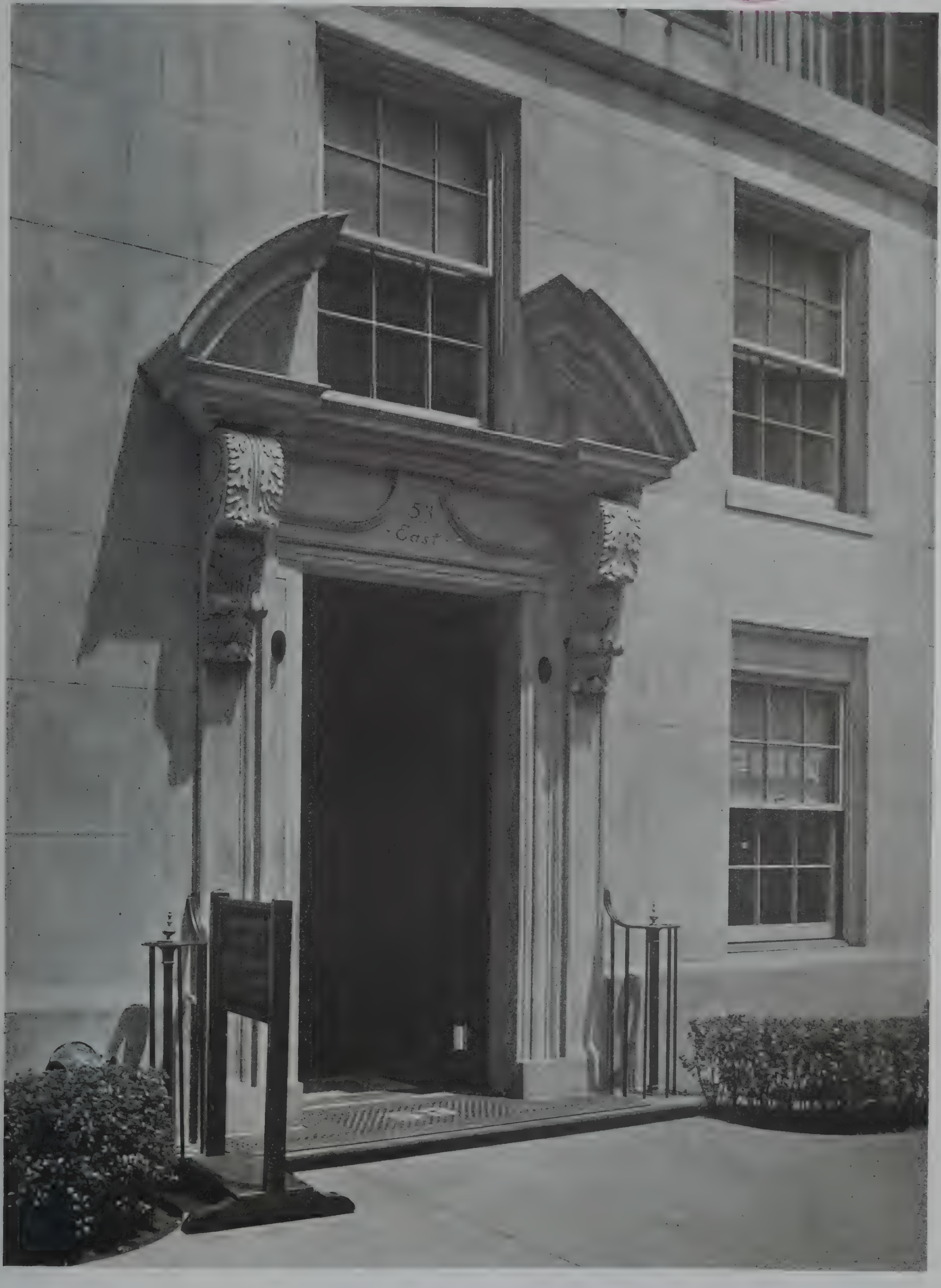


GROUND FLOOR

NO. 53 EAST 66TH STREET, NEW YORK

MOTT B. SCHMIDT, ARCHITECT

BOSTON PUBLIC LIBRARY



DETAIL, ENTRANCE DOOR NO. 53 EAST 66TH STREET, NEW YORK
MOTT B. SCHMIDT, ARCHITECT

Features Which Help to Rent Apartment Houses

By C. STANLEY TAYLOR

IN other articles appearing in this issue of THE FORUM the broad subjects of planning, equipment and decorating of apartments are covered in a comprehensive manner, leaving as the purpose of these pages the consideration of certain special features which appeal directly to the prospective tenant, and often aid materially in renting, particularly in a highly competitive market. Obviously this subject is not to be presented in a technical manner, but is to be, rather, a series of suggestions gathered from the experiences of various apartment house owners, managers and agents. We have found that only a comparatively small investment of careful thought may result in the provision of added features of attractiveness or convenience, which sometimes seem more important to the prospective tenant, if it be possible, than does the plan itself.

The first approach of the prospective tenant to his consideration of an apartment lease is represented by the impression made by the location of the building and by its exterior architecture. It is an established fact that most tenants rent an apartment from the inside impression, rather than from any serious consideration of the approach and exterior of the building. On the other hand, it certainly pays to give careful thought and perhaps to spend some additional money to create an interesting and appealing exterior. From the point of view of the tenant it is not so much the impression which he himself receives, but he is likely to think of the impression which will be made on the friends who may visit him during the period of his lease. Experience has shown that apartment building exteriors of interesting architectural design, which sets them somewhat apart from the average building, will usually command a somewhat higher rental for the same areas, and that the vacancies are fewer than in a building of unattractive design. During the recent period of active building in the apartment field many speculative buyers, even of the cheaper class of houses, have discovered that good exterior architecture, particularly with the provision of garden courts and similar features, has proved a powerful factor in successful renting and selling.

The final decision of a prospective tenant is established on a series of impressions, beginning with that had with his first view of the building, and if this be favorable it is obvious that there will be less resistance to overcome in his consideration of other features. The second impression is usually registered after passing through the main entrance into the lobby. Examination of the lobbies of older apartment buildings shows them divided into two definite classes,—the first where no effort has been

Space Saving Is Accomplished by Compact, Efficiently Planned Kitchens and Dining Rooms

Such Features as Built-In Ironing Boards Are Thoroughly Appreciated by Tenants

made to provide any element of attractiveness, and the second where ornamentation has been greatly overdone. The modern trend is to design apartment entrances and lobbies in a simple but effective manner. Because of high building costs every effort is made to keep this section of public space as small as possible, but through the skillful selection and use of materials it is possible, even in very small lobbies, to create a distinctly favorable reaction in the mind of a prospective tenant, who again is not only thinking of himself but of his friends. It requires only the application of a little common sense to realize that if the prospective tenant has been well impressed by the exterior of the building and by its entrance and lobby, he is more than half "sold" before he enters the individual apartment. On the other hand, if he has not been so impressed, his mental attitude at the time of entering the individual apartment is that it must be unusually appealing if he is to live in a building which he has already decided is unattractive. It may be well also to record the fact that this first impression is not established alone on physical considerations, but that his opinion of the atmosphere of the building and its service is plainly formed at the entrance.

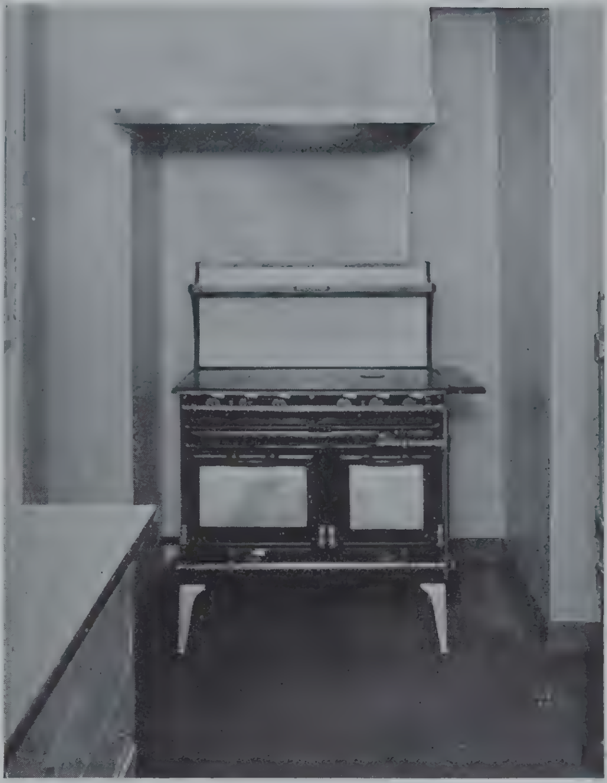
In the average apartment building the public halls or lobbies on each floor are usually left in the plain, utilitarian ugliness of painted metal doors and elevator enclosures, but it is to be noted that even in smaller apartment buildings of the better class the modern tendency is to provide some decorative note, and perhaps the relief of a single seat or console table with a mirror above. This is just another device, small in itself, which adds to the series of good impressions on which the successful conclusion of leasing negotiations is based and which are valuable.

After entering the individual apartment, the first interest of the tenant is usually confined to the sizes and arrangement of rooms, and as this has already been discussed under the heading of "planning" it is unnecessary to consider the details at this point. Probably the next general impression is gathered from the decorations and fixtures, which are also discussed in other articles, but thereafter the mind of the tenant is open for impressions, which will be established principally by his discovery of special equipment or features of comfort and utility which appeal directly to the sense of personal well being. Anyone who has had experience in renting apartments will note that the prospective tenant, with a hasty glance at the principal rooms, goes immediately to a careful examination of the kitchen and bathroom. At these points his decision is often made.

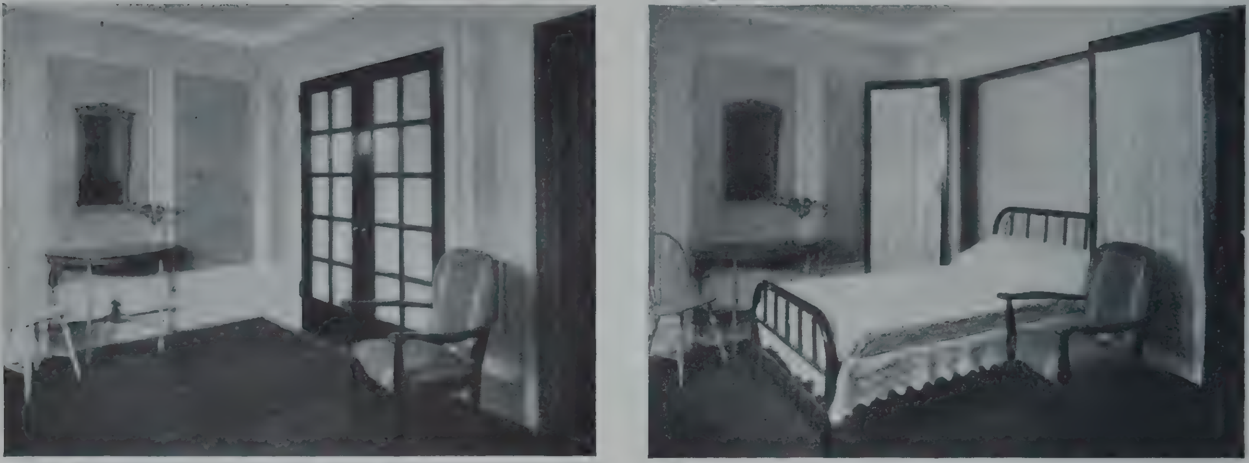
Large size is not an essential factor of the average apartment kitchen today, but efficiency of arrangement and equipment is an important consideration. Good practice in apartment planning no longer allots a given space to the kitchen, but first selects the kitchen equipment and after disposing this in relatively proper positions plans the kitchen accordingly. Tenants of modern apartments have been trained to expect to find in the kitchen a gas or electric range, a kitchen cabinet of some efficient type, ice box (preferably having electrically-operated refrigeration), ample closet space, sanitary and easily cleaned

Skillfully Planned Kitchen Equipment Provides Full Efficiency in a Small Space floors and walls, and convenient facilities for the disposal of garbage and household waste. Other special features in the kitchen which appeal strongly to tenants include built-in ironing boards, individual dishwashing machines, and various combinations of the kitchenette type which are particularly adaptable where kitchen space is extremely limited. The question of electric outlets is highly important, and at least three of these should be found in every apartment kitchen. In most instances tenants appreciate the provision of laundry tubs, even though there may be a house laundry in the basement. The field of kitchen equipment is well worth careful study, because of the vast number of improvements which manufacturers have brought out in a comparatively short time. In the new models of gas ranges, refrigerators and other kitchen details, the primary aim seems to be compactness and saving of space without the sacrifice of efficiency, and it is amazing how successful manufacturers have been in the development of such details. Another interesting trend is toward the provision in many of the newer apartment buildings of flue-fed incinerators. This seems to solve the problem of garbage and waste disposition in an extremely satisfactory manner, and at a low overhead cost. The design of this incinerator is based on the fact that there is a sufficient quantity of combustible waste in the average household to dry out and ultimately consume the garbage. Hopper doors are placed in the flues on the different floors, and all waste of every description (except liquids) is disposed of through these doors and falls into the incinerator in the basement. Waste material dropped into the flue is usually wrapped in paper, and the heat from frequent burnings tends to keep the flue in a sanitary condition, assisted by a coating of soot which soon accumulates and by the constant friction caused by falling packages. It is obvious that such labor-saving and efficiency devices in the kitchen have a direct appeal to the prospective tenant, particularly in smaller households with no servants.

Modern Standard Kitchen Equipment Often Includes Many Service Features in One Compact Cabinet


Tenants Are Learning to Demand Flues, and Often Hoods for Gas Ranges

The planning and equipment of the bathroom have become highly important factors in renting the modern apartment. Floors and walls of tile are established as standards, and within the past two or three years the introduction of colored tile and some degree of ornamentation have become general and seem to afford a welcome relief from the monotony of the all-white tiling. Good sanitation and simplicity of cleaning are made possible by the use of built-in bath tubs, having no space beneath, and by using hanging wash bowls, radiators and other side wall fixtures, which do not interfere with the cleaning of the floor. Facilities for shower baths have become almost essential, either of the simple overhead type, placed above the tub, or preferably, in the more expensive apartments, the separate shower with its carefully studied arrangements of mixing and control valves. It may be noted also that the average tenant appreciates and will look for more than one bathroom, even in comparatively small apartments. In many modern buildings, containing three- and four-room apartments, it is today common experience to find two baths and perhaps a separate lavatory for the servant, who usu-



Daytime Night

The Door-Bed Is the Principal Factor in Space-Saving Planning for Apartments. This Device Has Gained Great Popularity with Tenants All Over the Country

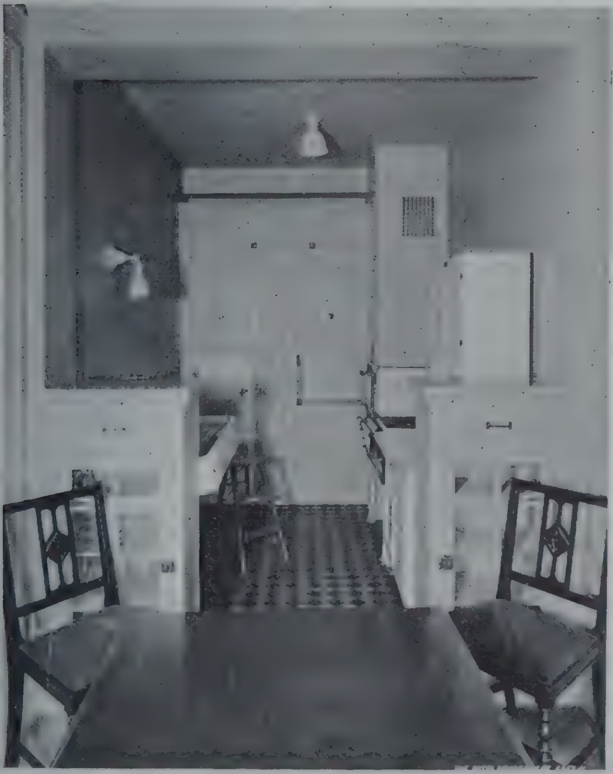
ally comes in for the day. The arrangement of lighting fixtures and mirrors in the bathroom is usually studied with care by the prospective tenant, because in many instances the bathroom has assumed the functions of the abandoned dressing room.

The all-important question of conservation of space has caused a number of radical changes in the planning of apartments, particularly those designed for rentals up to say $300 per month. At least two distinct planning elements have become fairly important from the viewpoint of their influence on the rental income of buildings. The first of these is the so-called "efficiency" planning, which involves the establishment of double-purpose rooms, as made possible by the introduction of concealed beds (door-beds). Under this system of planning, which has been carefully described in several past issues of THE ARCHITECTURAL FORUM, the principal rooms may be made to function in dual capacities. There is no question but that in many instances it means the solution of the problem of making an apartment building investment pay. Here in the same number of square feet of rentable area may be contained almost twice the living facilities of the apartment planned in the ordinary way, thus allowing a fair meeting point for the rental income demand of the owner and the pocketbook limitations of the tenant. The other fundamental change in planning, which is occurring more and more frequently, particularly in the case of small apartments, is the sacrificing of the dining room in order to provide a large living room, which may also be used for dining purposes. In many instances the informal function of the dining room is retained by the provision of the so-called "dining alcove" or "breakfast nook," which consists of built-in table and benches. In practically every instance where such dining alcoves have been provided they have soon been recognized as a powerful factor toward influencing quick and satisfactory decisions as to rentals. There are, of course, many compromises possible between the old and the new systems of planning. For instance, in a number of recent apartment buildings door-beds have been installed as well as bedrooms, their purpose being to provide guest rooms without the constant expense of maintaining empty bedrooms for that purpose. The idea of the large living room or "studio," gained by sacrificing the dining room, has achieved great popularity, and it is to be noted that in cases where both types of apartment were made available in the same building, those planned in this manner or under the "efficiency" system have been the first to rent and also at satisfactory prices.

A Fold Away Breakfast Alcove

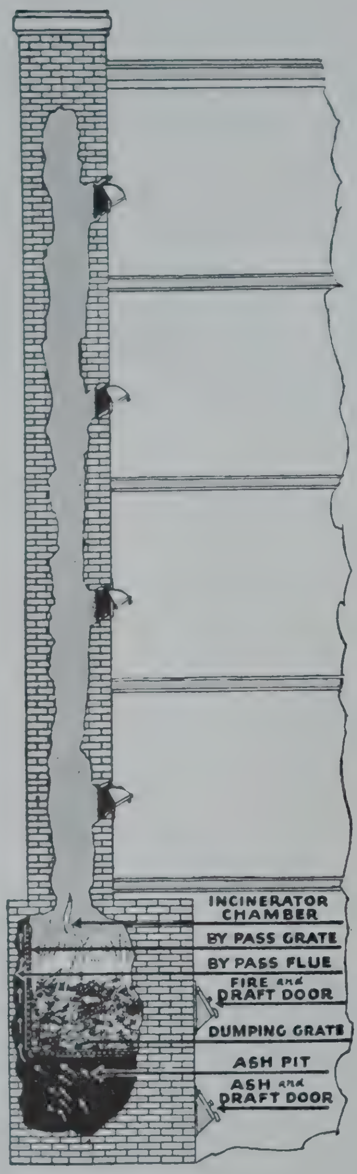
Another very definite influence on apartment planning and rentals is the growing tendency of American people to live in the city in winter and in the country during the summer. So has this practice grown in the larger urban districts that thousands of families sacrifice the size of an apartment occupied during the winter to meet the rental budget which must cover both winter and summer quarters. There is another reason for the growing popularity of small, efficiently planned apartments, and such interest is also encouraged by the fact that where, as in most cases, it is found desirable to sublet, these smaller apartments find a much readier market when offered furnished for a period of a few months. The design of the living room or "studio room," as it is often termed, has developed apace with the demand for this type of living accommodation. A fireplace is almost an essential feature, not for its value as a heating factor, because in many instances it is never even used, but because of its contribution to the homelike atmosphere and the decorative scheme of the room. Depending somewhat on local conditions, it is often found advisable to equip these fireplaces with gas or electric glowing heat, in the form of artificial logs or coal in grates. At the same time, it is not wise to introduce artificial fireplaces, as the term "wood-burning fireplace" has been very thoroughly capitalized in the apartments of larger cities, and the rental value of this feature may be fairly appraised at $300 or more per year, because it has been noted that this is the average difference paid in the annual rental for the same apartment or similar apartments in the same building, one having a wood-burning fireplace and the other none. Mantels installed in such living rooms should be chosen with care, and while they should not show too definite a period influence (because, after all, they must not clash with the tenants' furniture), it is important they should be of graceful lines and proportions. Such features as built-in or covered radiators are appreciated. These are often introduced under long window seats or beneath book shelves. It must be remembered also that the average tenant looking at an apartment will have a list of measurements of his principal pieces of furniture, and that in each room ample wall spaces should be allowed for the usual conventional pieces of standard sizes. This is particularly true in the living room and in bedrooms, where it is inadvisable to break up wall spaces with too many doors and windows to spoil valuable areas.

In examining an apartment for prospective rental, tenants usually look carefully at the floors in the living room and dining room, generally demanding well finished hardwood. The use of inferior grades of hardwood for this purpose is a mistake which is commonly made by apartment owners, and it is usually paid for through the medium of expensive refinishing almost yearly. The finishing of walls and trim may well be left to the selection of the tenant under proper limitations. There is no question but that the educational effect of broad publicity for better home decoration and furnishing, as evidenced by many articles appearing in national and local publications, has had a decided influence on apartment rentals. The average tenant has developed at least a small degree of definite taste, usually fairly good. The apartment home is therefore not furnished today in the haphazard way of years ago, but is ar-



The Combined Kitchen and Dining Room—a Feature of Many Efficiency Apartments

Compact Gas Ranges Contribute Their Quota to Efficient Kitchen Planning



The Modern Method of Disposing of Apartment House Garbage and Household Waste

ranged under a fairly definite scheme; thus, if there is an element of flexibility in the final decorations, the average tenant will appreciate this condition.

An interesting example of how advantage may be taken of this situation was recently indicated during the renting period of a large and new apartment building in New York, by the establishment on the ground floor of a simple room where a small exhibit of wall papers and paints and other decorative details, including lighting fixtures, was arranged by the owner and selection allowed to the tenants. This feature met with instant approval and interest, and was unquestionably instrumental in renting many apartments which might otherwise have been untenanted for some time. Another rental plan, which was noted as having completely filled a new apartment building before the roof was on, involved the establishing across the street of a renting office with an exhibit of the architect's drawings, a number of well drawn interior sketches, the plans of the building, and samples of paint, wall paper, flooring, bathroom fixtures, lighting fixtures and other equipment, some of which was optional for the tenants' selection and the rest of which served to suggest more definitely the probable appearance of the living quarters which the tenants were renting from the plans. In this exhibit there were shown a typical fireplace, mantel, gas range, ice box, kitchen cabinet, and other types of equipment. This same method of aiding visualization has been successfully employed in the development of coöperatively financed apartment buildings, and in each instance it has had a strong influence on the early signing of leases and on the sale of stock in coöperative enterprises.

It is impossible to lay too great an emphasis on the importance of providing an ample number of electric outlets in all rooms. The decorative value of floor lamps and table lamps and the utility value of many types of electrical household equipment have grown rapidly each year for a long period, with the result that the third or fourth action of a prospective tenant in examining an apartment is to ascertain the number and location of the electric outlets. Provision of built-in furniture, such as window seats, bookcases and china closets, usually has a favorable influence in renting an apartment, while among tenants there is a growing recognition of the value of ample and properly equipped closet space, the larger units of which should be provided with electric lights. Certain general conveniences, for use of the tenants in common, are thoroughly appreciated and often demanded.

After all is said, it is obvious that the features which rent apartments may be determined for each individual project by a common sense study of human nature and of the living habits of the type of tenants desired for the building. In almost any neighborhood where new apartments are being constructed, obvious comparisons may be made, and it might prove extremely interesting to analyze some of these if space permitted. One very tangible instance may be found today in the Washington Square district of New York, where, standing side by side, two apartment buildings have just been completed. One was built by conservative owners along the old lines of apartment planning, while the other building shows an architect's ingenuity in providing an extensive series of features which would appeal directly to prospective tenants. Apartments in both buildings were offered for rent at the same time, which was about the time the roofs were on. The cleverly planned building is completely rented today, while the other building has yet to fill over half its space. The really significant point, however, is that in the building planned on a common sense basis the average rentals are almost *one-third higher* per square foot than in the adjoining new building!

Coöperative Apartment Buildings

By ARTHUR E. CURTIS

Secretary, Coöperative Apartment Section, National Association of Real Estate Boards

THE foundation of the success of coöperative apartment buildings is appreciation of the fact that this method of home ownership eliminates waste as represented by that large proportion of rental money used to meet expenses made necessary by the renting system itself and not needed for the actual maintenance and operation of the property. Every dollar of this waste is paid by the tenant, and all of it is saved by organizing effort and combining capital in such a manner as to place the ownership and operation of the building in the hands of those who live in it. The amount thus saved is astonishing.

Study, for example, the uses to which rent money is ordinarily devoted. This will demonstrate the fact that combining owned apartments under one roof saves, along with many other miscellaneous items:

All loss from vacant apartments.

All loss from uncollectible rents.

All expenses of management, including advertising.

All costs of excessive decorations.

All repairs occasioned by frequent shifting of tenants.

The total of these is variously estimated at from 25 to 35 per cent of every month's rent. In addition to this, coöperative ownership eliminates entirely the landlord's and speculator's profit. This amount, varying from 5 per cent in times of over-supply to 30 per cent in times of over-demand, as at present, combined with the saving in waste, will enable the coöperative owner to save half the rent now being paid for his apartment, and occasionally even more.

An unusual opportunity awaits the architects who make a special study of designing apartments as permanent homes in coöperative buildings. This form of home ownership is growing soundly and rapidly throughout the United States. This is true not only in the larger centers, but in the smaller cities as well. One city of only 16,000 population in the middle West has seven successful coöperative apartment buildings. From this city (Champaign, Ill.) up through the scale to Chicago and New York, own-your-own apartments are gradually becoming understood and appreciated. In fact the size of the city has nothing particular to do with the practicality of a coöperative project. They are successful, if soundly organized, wherever families desire apartment house life, and this has now been amply proved.

If apartments are scarce or unpopular in any city, it is not a good field for a coöperative enterprise. However, if a percentage of the population of a city constantly lives in apartments, and if that mode of living is in demand, there are many advantages in coöperative apartment building that will appeal to the people. Among the classes having modest incomes, coöperative apartments are not only creating home-owners but are saving money for families that are obliged to live closely to established budgets. Among certain working classes in New York, coöperative apartments have cut $20 to $30 per month from the outgo for living quarters of decided desirability. All the way up the social scale, coöperative apartments are popular, even up to the de luxe apartments of Park Avenue in New York, the Lake Shore Drive in Chicago, or in Long Beach on the Pacific coast. The movement is of wide application.

This tabulation will give a fair idea of the savings made possible in the moderate cost apartment field.

$660 PER YEAR SAVED BY OWNING APARTMENTS

Annual savings of owning an apartment as compared with renting the same apartment for a period of ten years. The basis of this analysis is a five-room apartment with a normal rental value of $100 per month, purchased on the basis of seven times the annual rental value or $8400, with a 50 per cent equity and 50 per cent straight mortgage. Cost of equity in apartment, $4200.

	End of 1st Yr.	End of 2nd Yr.	End of 3rd Yr.	End of 4th Yr.	End of 5th Yr.	End of 6th Yr.	End of 7th Yr.	End of 8th Yr.	End of 9th Yr.	End of 10th Yr.
Rental of $100 Per Month	1,200	2,400	3,600	4,800	6,000	7,200	8,400	9,600	10,800	12,000
COST ON OWNERSHIP PLAN										
6 Per Cent Int. on $4,200 Investment	252	504	756	1,008	1,260	1,512	1,764	2,016	2,268	2,520
Operating and Upkeep Expenses....	264 ($22 per Mo.)	528	792	1,056	1,320	1,584	1,848	2,112	2,376	2,640
NET SAVING ON OWNERSHIP PLAN										
These figures are very conservative	600	1,320	1,980	2,640	3,300	3,960	4,620	5,280	5,940	6,600

The architect, therefore, may choose his field of operation in the coöperative apartments for the working classes, selling for $100 down and so much per month, or else the palatial apartments of 24 rooms and six baths, costing as much as large city houses. The vital point for him to consider is that apartments designed as permanent homes must embody qualities and characteristics not found in ordinary apartments designed for rental purposes. Even though a family may purchase an apartment now and sell it next year, their attitude at the time of purchase is that they are buying a *home*, and their demands, therefore, are more exacting than when they view an apartment with the idea of "camping" therein a few months as tenants. It is true that such families may often "camp" from year to year, always expecting to move or dreaming of a "bungalow," but remaining on and on because of the comfort and convenience of apartment house life which outweigh the undesirability of being simply tenants. People are just coming to realize that it is possible to live in apartments and at the same time to own their own homes, strange as that may seem.

Architects who are interested in specializing in the coöperative apartment house field will find themselves upon solid ground. This form of home ownership has existed for centuries in Europe and for 40 years in the United States, because it is both economically and socially sound. Those who are interested in this development on the other side of the water will find a wealth of material on the subject in the recent book, "Housing Progress in Western Europe,"* by Edith Elmer Wood. The test of time has proved this form of home ownership to be logical and sound from every angle and calculated to meet a real need. The evidence of the present popularity of this form of home ownership in the larger centers is found in a survey recently completed by the National Association of Real Estate Boards, which shows an estimate of more than $300,000,000 invested in coöperative apartments in New York alone. In Chicago there are more than 4,000 families housed in apartments which they own themselves. Southern California has many of them, particularly in Long Beach. The cities of Florida are taking them up, and coöperative apartments now find a ready market in the popular resorts, like Miami.

The success of a coöperative enterprise, like that of any other project, depends upon sound organization and the giving of fair value for money expended. For the protection of the public and the encouragement of the growth of this form of home ownership along the right lines, the National Association of Real Estate Boards has approved a standardized plan for organizing, selling and operating coöperative buildings. This plan represents the crystallized experiences of many of the leading firms in the business over a period of years. Every step in the procedure from beginning to end is given in detail, including the business and legal forms that have been proved practical and successful by test of time. These methods and forms have been perfected by actual hard knocks and at a cost of thousands of dollars in legal fees. This volume is available through the Book Department of The Architectural Forum, and will be gladly sent upon request.

As pointed out recently by R. B. Whitten, of Whitten & Gore, Architects, Boston, for those who wish to invest their money safely in either large or small suite apartment homes, the success of the venture depends chiefly upon the ability of the architect to design efficiently the proper building for the particular location. A good building on a poor site is no more successful than a poor building on highly desirable land. Whether elaborate or modest, efficiency in planning is a fundamental necessity for a successful project. This means to the purchaser of an apartment that for every dollar per square foot of building cost there should be a return of not less than 70 cents for the same unit figured on a rental basis. It is unsafe for investment, Mr. Whitten believes, to proceed with a plan that does not show an efficiency of at least 70 per cent. "It is the problem of the architect to see that all the conveniences of housing and management are incorporated in the plans and specifications, and space so utilized that economy may be maintained in operating."

Mr. Whitten continues, in his recent article in the *Real Estate News*, of Boston: "The banking houses which make mortgage loans on such buildings are thoroughly conversant with efficiency in apartment house planning, and recognize that a loose, poorly designed plan would make a 50 per cent loan a risk, while a compact and efficient planning of the same area would make a 60 per cent loan a secure investment. In the one instance the cost of the building is recognized as unnecessarily large with inadequate income, while in the other the waste spaces have been utilized to make more and larger rooms, with a corresponding income. Again, they see higher costs of operating and repairs in one instance as against economy in the other. Their experience has taught them that the well planned building looks desirable to the prospective tenants and consequently commands the best rents and contains the fewest vacancies during periods of business depression."

Architects who are interested in detailed information on this subject of coöperative apartment financing are referred to these articles which from time to time have appeared in The Architectural Forum, and which will be found helpful:

"The Financing of Apartment House Projects"; December, 1919.

"The Coöperative Method of Financing"; March, 1920.

"The Coöperative Financing of a Group of Houses"; April, 1920.

"Coöperative Ownership to Meet the Present Shortage of Buildings"; June, 1920.

"Coöperative Ownership of Buildings, Part II; Elements of Increased Building Cost"; July, 1920.

"Points from Investigation of the Coöperative Plan of Apartment Ownership"; August, 1920.

"Applying the Coöperative Method of Financing to Inexpensive Types of Apartment Buildings"; September, 1920.

"Business Aspects of a Successful Coöperative Apartment Development"; March, 1921.

"Coöperative Ownership of Apartment Houses:"

1. Methods and Principles of Joint Ownership; July, 1922.
2. Promoting and Financing Coöperative Projects; October, 1922.
3. Recent Progress in Developing Coöperative Buildings; November, 1922.

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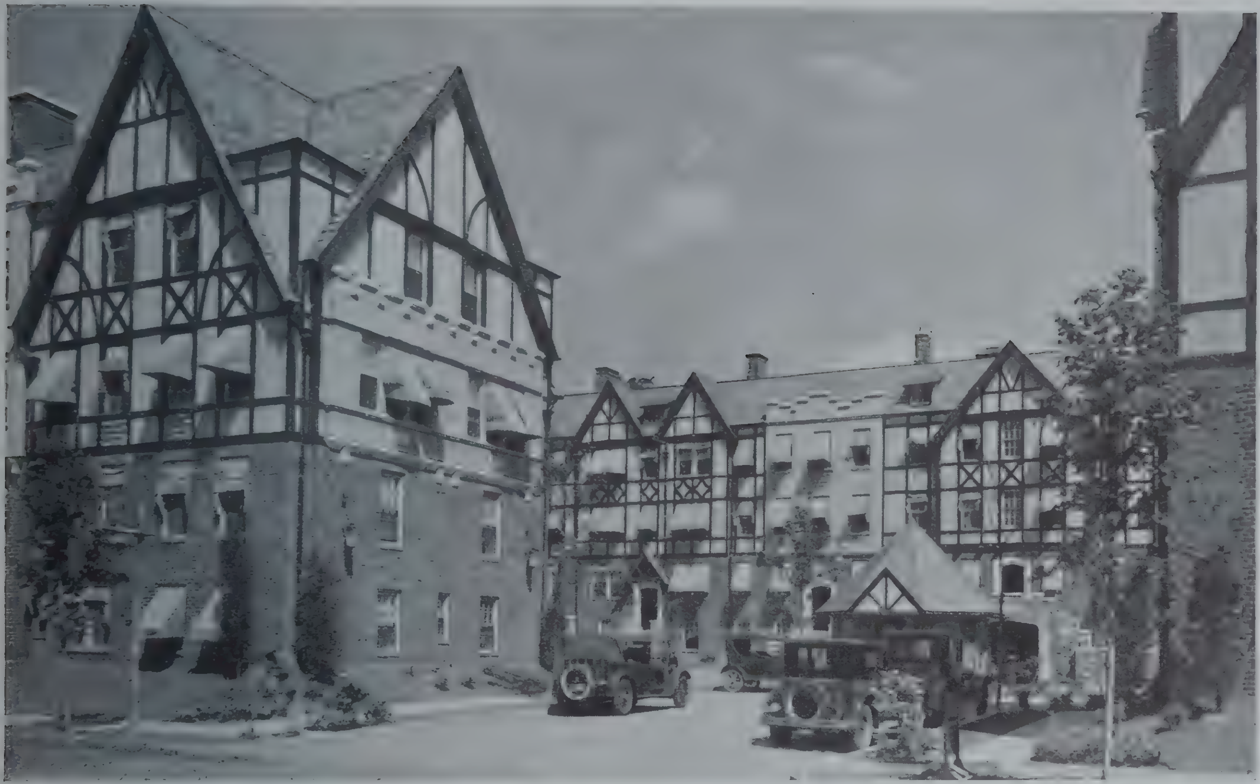
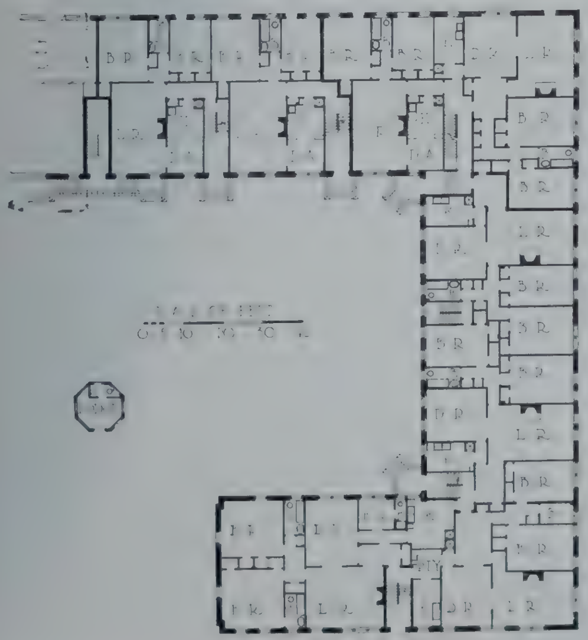
*Reviewed in The Forum for January, 1925.

The "Custer Arms," Bronxville, N. Y.

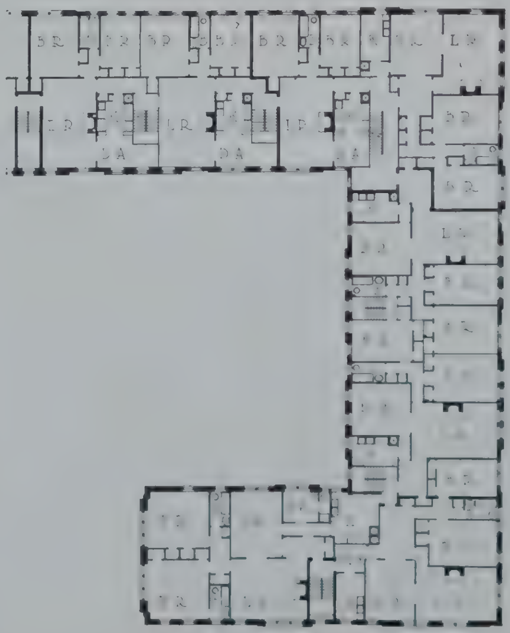
SOMMERFELD & STECKLER, Architects



ONE of the largest apartment house groups recently completed at Bronxville, N. Y., is the new "Custer Arms." Built around a hollow square, this group contains 64 apartments, some with dining rooms and others with dining alcoves. Each of the apartments has two bedrooms, and the larger have maids' rooms and baths in addition. An interesting feature of the design is a small octagonal porter's lodge located at the center of the courtyard, from which telephonic communication may be had with each of the apartments. Designed in a simple adaptation of the English style, the exterior shows the use of brick for the first two stories and stucco and wood in half-timber pattern for the stories above.



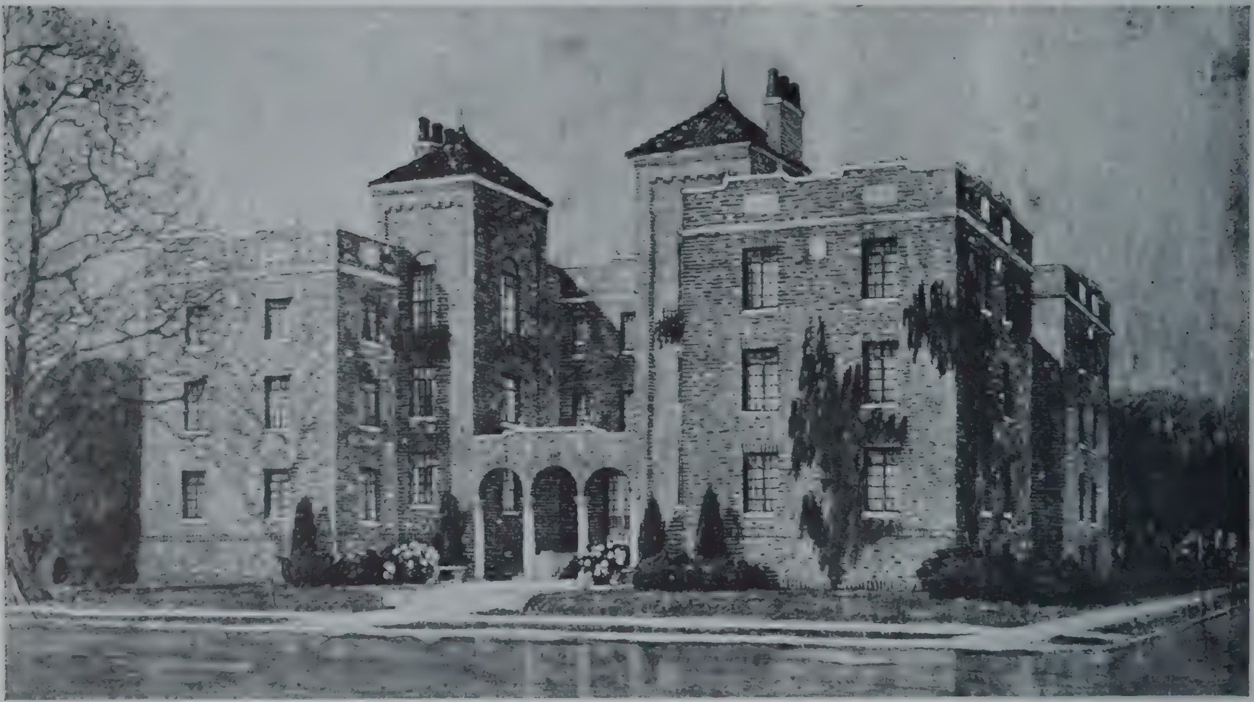
First Floor



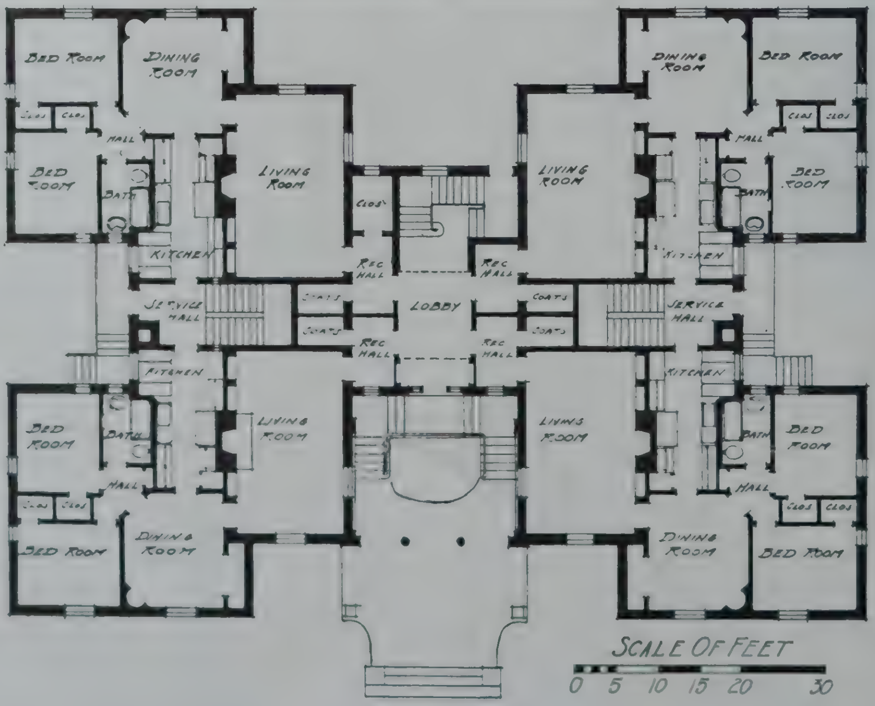
A Typical Floor

Small Coöperative Apartment House, Minneapolis

ARTHUR DAHLSTROM, Architect



THIS structure provides for 12 apartments, or four to each floor, but the location of the building on the lot, as well as its plan, provides outside windows for every room of the entire building. The roof is of tar and gravel; the windows metal casements; floors are oak in all rooms except kitchens and bathrooms, where linoleum is used. The heating is from steam, generated by oil burners. Plumbing fixtures are enameled iron, and all tubs are built in. Electrical equipment comprises lighting and refrigeration. Interior mill work is principally oak. Interior wall finish is rough plaster in some rooms and wallpaper in others. Cubic footage is 255,000. Estimated cost per cubic foot is about 40 cents.



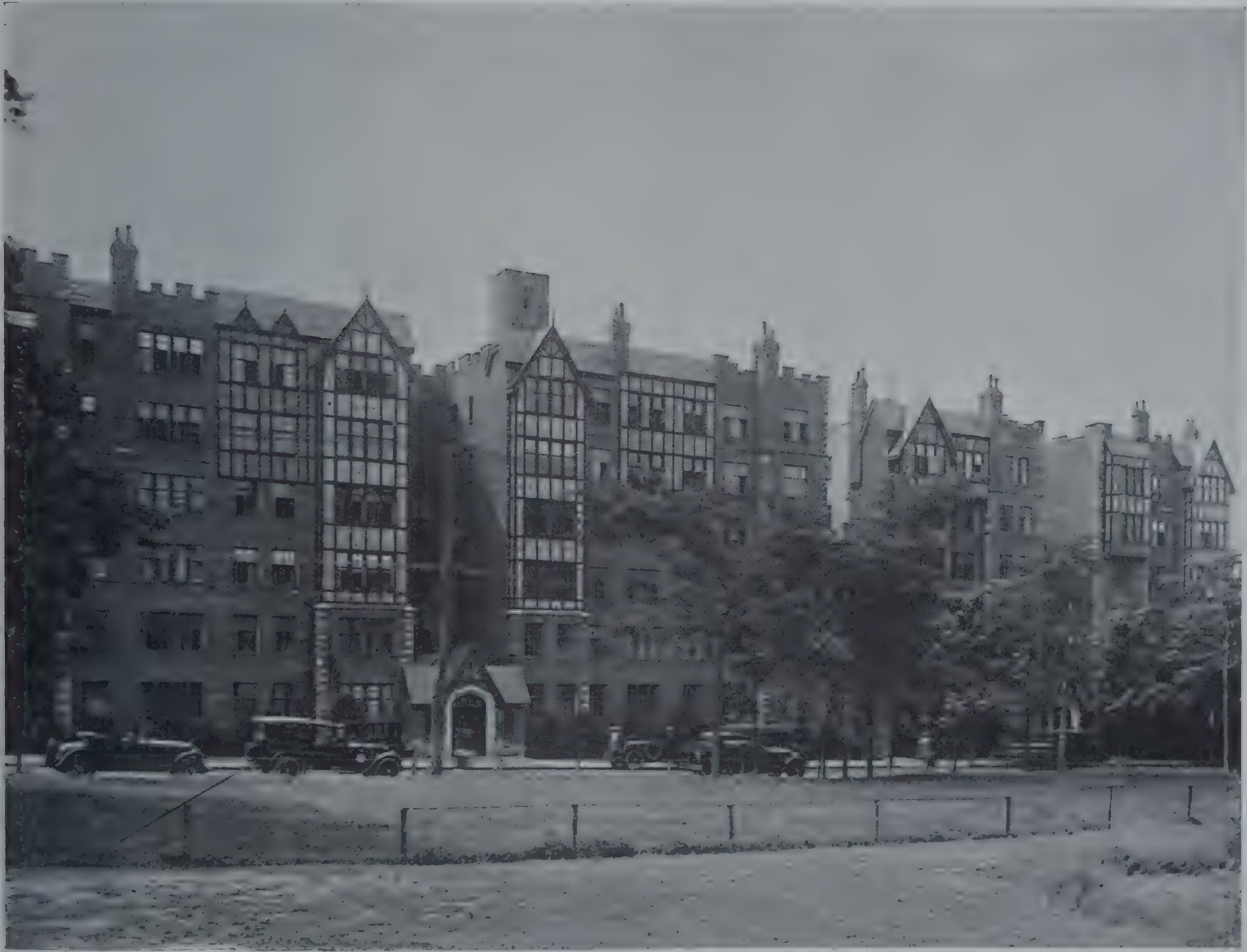
Ground Floor

Efficiency Apartments

By GEORGE F. PELHAM, JR., *Architect, New York*

THERE is little of the pioneer in the speculative builder of New York. His bag of tricks does not include a leaning toward the unusual or the new. He is a follower of the beaten paths, a conservative, if ever there was one. And yet I do not think that he is such from choice; rather has he been forced into it by the powers which he has chosen to cater to. Before him are ever the wrecked works of others, less conservative than he, who have run upon the rocks of public opinion, for the New York renter of apartments is indeed a timorous fellow when it comes to even slightly changing his mode of living. He may try various adaptations of the same scheme, but he is loath to try various schemes. For years he and his fathers before him have stuck to much the same plan of living. What he possesses has been tried and found to be good; anything new or radical may tempt him for a moment, but he is suspicious of it. In the end he usually falls back upon the stereotyped layout. And the builder, well aware of the feelings of his prospective tenants, must needs provide only those things that they demand. I doubt, seriously, if any really novel departure from the usual has ever originated in New York; rather is it the last place in the country to welcome a change, and is usually in opposition.

In this respect the large middle Western cities and those along the Pacific coast have, particularly since the war, shown far greater progress in the solving of the problems that changes in conditions have made necessary. With the post-war migration of families from the country to the city, with the increased cost of building material, labor and land, and with the impossibility of obtaining and keeping servants there came the necessity of radically altering the mode of city living. The increase in average incomes, although great, did not suffice to meet the increase in costs. In addition there come other factors in modern living, the cost of which further diminished the amount available for apartment rental. The automobile, at first a luxury, soon became a necessity, and its initial cost and the upkeep thereof must be subtracted from the family budget. The desire for ease and comfort has also during the past five years



Photos. John Wallace Gillies

Hudson View Apartments, New York

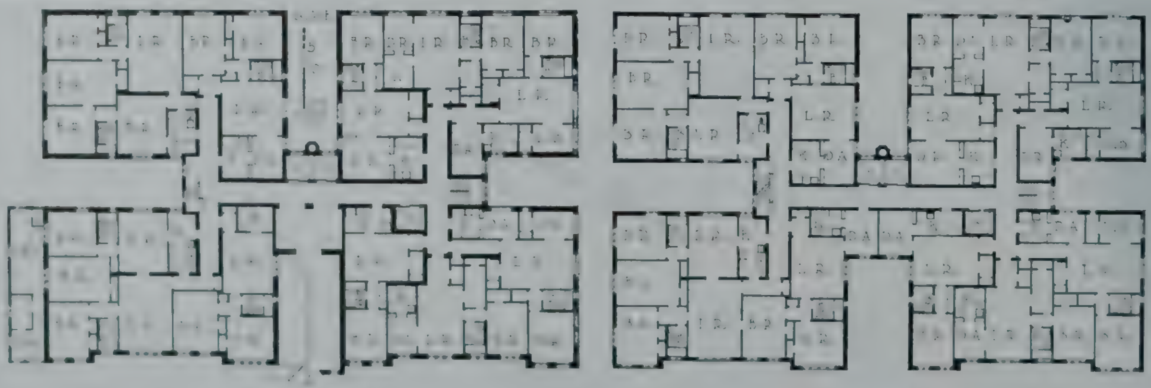
George F. Pelham, Jr., Architect

Detail, Hudson View Apartments

Terrace, Hudson View Apartments

increased greatly. Hence the average man with an income of from five to ten thousand a year finds that only a small portion of it is available for rent. His family, let us say, consists of four people,—himself, his wife and two children. He must have at least five rooms, a living room, dining room, two bedrooms and a kitchen. He must live as near as possible to his place of business. He must have a garage for his car. His problem is to find five rooms in a centrally located district for a certain amount of money, and usually he secures it with difficulty.

But the land values in these central districts are enormous. The cost of construction, due to costs of labor and material, has increased three fold. The builder cannot construct five good sized rooms for the rental that the man can afford to pay. The tenant or apartment seeker concludes that the builder is a robber; the builder claims that the tenant wants too much for too little. An impasse is reached. As I say, the Western and middle Western cities overcame these difficulties as they arose. The builder in those parts of the country at once did away with all superfluous rooms and unnecessary conveniences. Wash tubs were removed from the kitchens, and steam laundries were installed in the basements. This eliminated many fixtures, cut down the cost of plumbing, and made available many square feet for use elsewhere in the apartment or for other apartments. The old time bathroom with its 6-foot tub and dressing room space was reduced to a minimum. With the advent of showers, the tub became shorter. Use of scientific plumbing connections permitted a closer crowding of the fixtures. The flushometer did away with the bulky water tank. The bathroom shrank to half its former size, and with it shrank the cost of tiling. Next, the main rooms came under the economic ax. People had found that the "little restaurant around the corner" could



SECOND FLOOR A TYPICAL FLOOR

Peldean Court, Pelham, N. Y.

George F. Pelham, Jr., Architect

Hudson View Apartments, New York
George F. Pelham, Jr., Architect

offer a first rate meal for less than the housewife could provide it for, and she, by "eating out," avoided the annoyances of cooking and dish washing. Breakfast and luncheon were really the only meals that had to be provided at home; why, then, the necessity for a large dining room and kitchen? The kitchen fixtures were reduced in number and were more compactly arranged. By adding a few feet to the living room a gate-leg table and four Windsor chairs could be provided, and the dining room with its costly ten-piece "set" done away with. Victrolas and radio took the place of the piano. The fireplace went by the board, for the reason that an adequate supply of coal or wood in the city was not to be had. The disposal of ashes was also a nuisance. In addition, the evenings were now spent at the "movies"; the living room was no longer the nightly meeting place of the family. The increase in the ease and speed of travel made overnight guests a rarity. The guest room, being no longer a necessity, was eliminated entirely. All these and many more things were introduced at once in the before-mentioned Western and middle Western cities. Builders saw a chance to put more rooms on the same sized plot for a smaller cost, and at the same time give the tenant the main essentials required. Obviously it worked both ways. The people readily fell in line with the idea to their own (and the builders') immediate gain. The old standard was forgotten; a new standard had been instituted almost over night.

The manufacturers of space-saving devices rushed to New York. Here, quite obviously, was the greatest need for their wares. Why hadn't New York seen it first? They approached the architects with confidence. The idea was not only quite evidently practical, but it had proved its success by actual use. The New York architects were in the main quite easily convinced, but they knew by experience the

"Peldean Court" and "Pelbrook Hall," Pelham, N. Y.
George F. Pelham, Jr., Architect

whims of New York people. The builders likewise recognized the practicability of it, but like the architects their question was—would the tenants? Could they afford to gamble? Past experience pointed to the inadvisability of such a course. The loaning companies, dismayed by the increase in costs, were loath to loan money on "over-night" schemes. Materials, they argued, were sure to come down in cost, as would also the prices of labor. In a few years, at least, building costs would return to a pre-war level. In that event, the old order would be returned to; what, then, of the new ideas? Most certainly these new types of building would eventually become white elephants. No, the loaning companies would not gamble; nor would the builders. The fallacy of this line of reasoning is quite obvious. Pre-war prices had gone, never to return, as had also pre-war methods of living. For years the manufacturers bombarded New York, but to no avail. Floor plans of highly successful efficiency apartments came in from Chicago, Cleveland, and points west. The South fell in line, as did also the other sections of the country, and finally New York stood alone in her conservatism. Under pressure, a few more daring builders sought to woo the public by the installation of one or another of the new ideas. The concealed bed, opening from a closet into the living room, gave that room a double efficiency. They provided the closet and installed the bed. Otherwise the apartment remained the same. The manufacturers were jubilant; the ice had been broken. But with renting their joy came to an end. The tenants cast suspicious eyes on this new contrivance. It was a makeshift, a fake! Rather than ask a guest to sleep in such a thing, they would not invite the over-night guest. The beds were piled in the cellars; the closets were utilized as were the others; progress had received a decided setback.

Next the dining nook was attempted. The kitchen fixtures were placed in the rear, and a table and two benches were set up near a window. Again the people turned thumbs down. Eat in the kitchen? No indeed, or at least they refused to let their friends *think* that they did so. With the benches in plain sight it was quite evident that they did eat occasionally in the kitchen. That must not be known. Out went the dining nook. And so on down the line. Efficiency planning might be a great success in every other city, but not in New York. The manufacturers were not discouraged. What they offered was good, and they knew it,—but it would take time. Another means of proving it must be found. The suburban apartment proved to be the back door through which they effected their entrance. In the towns within commuting distance from New York a demand for apartments sprang up. The sons and daughters of the house must needs marry and seek nests of their own. They wanted to live in the country, and preferably in their own home towns. The country clubs, the Sound resorts and the fresh air could only be taken advantage of by living in the suburbs. They could, however, hardly afford homes of their own. The young bride of the present generation does not fancy either housework or cooking. Neither she nor her husband is hampered by the city people's false pride. A small kitchenette and dining alcove would be just the thing. It would save work and the money required for furniture. The living room need not be large, and surely for the unexpected guest a made-up bed, easily pulled from the recesses of a closet, would be vastly more attractive than a hastily provided shakedown on the davenport. For them a bedroom and bath were all that were needed to provide a complete and compact home. They rushed to the first apartment so arranged. Others quite naturally followed. Some even went so far as to request the builders to omit the bedrooms, and then installed for their own use twin concealed beds in the living rooms. Why not? They couldn't go to bed anyhow until their guests had gone, so why not upon their departure convert their living room into a bedroom, and thereby save the rent of a room? A small dressing room containing the beds could easily be equipped with clothes closet, dressing table and "chifferobe." Again, less furniture and less space to clean! With the money so saved they could have a car and more time to enjoy it. The older folks visiting their offspring envied them their freedom . With the children gone, why keep an eight-room house? So Mother and Father moved into the efficiency apartment around the corner. When the offspring had offspring of their own, they simply moved into another apartment with one more room. By that time their finances were in better condition. The young mother was glad of the few square feet to keep in order. The laundress, who came in once a week, did the washing in the cellar or on the roof, and she wasn't hanging around the kitchen all day! And meals? Well, if guests came they could be taken around the corner to the tea room. Less work for the hostess, and hence more joy for the guest. This meant the apartment's popularity, and use of efficiency equipment increased.

West Elevation, Hudson View Apartments, New York
George F. Pelham, Jr., Architect

The city apartment owners, in calling on their suburban friends, soon came to the realization that they had in the matter of comfort far less than their country cousins. For themselves, they liked the city. The husband wanted to be close to his business; his wife close to the shops. Why then not apply the same space and time-savers to the city? He could

Dining Room and Kitchenette Alcove, Hudson View Apartments

Door Bed in Position, Showing Doors of Closet Closed, Hudson View Apartments

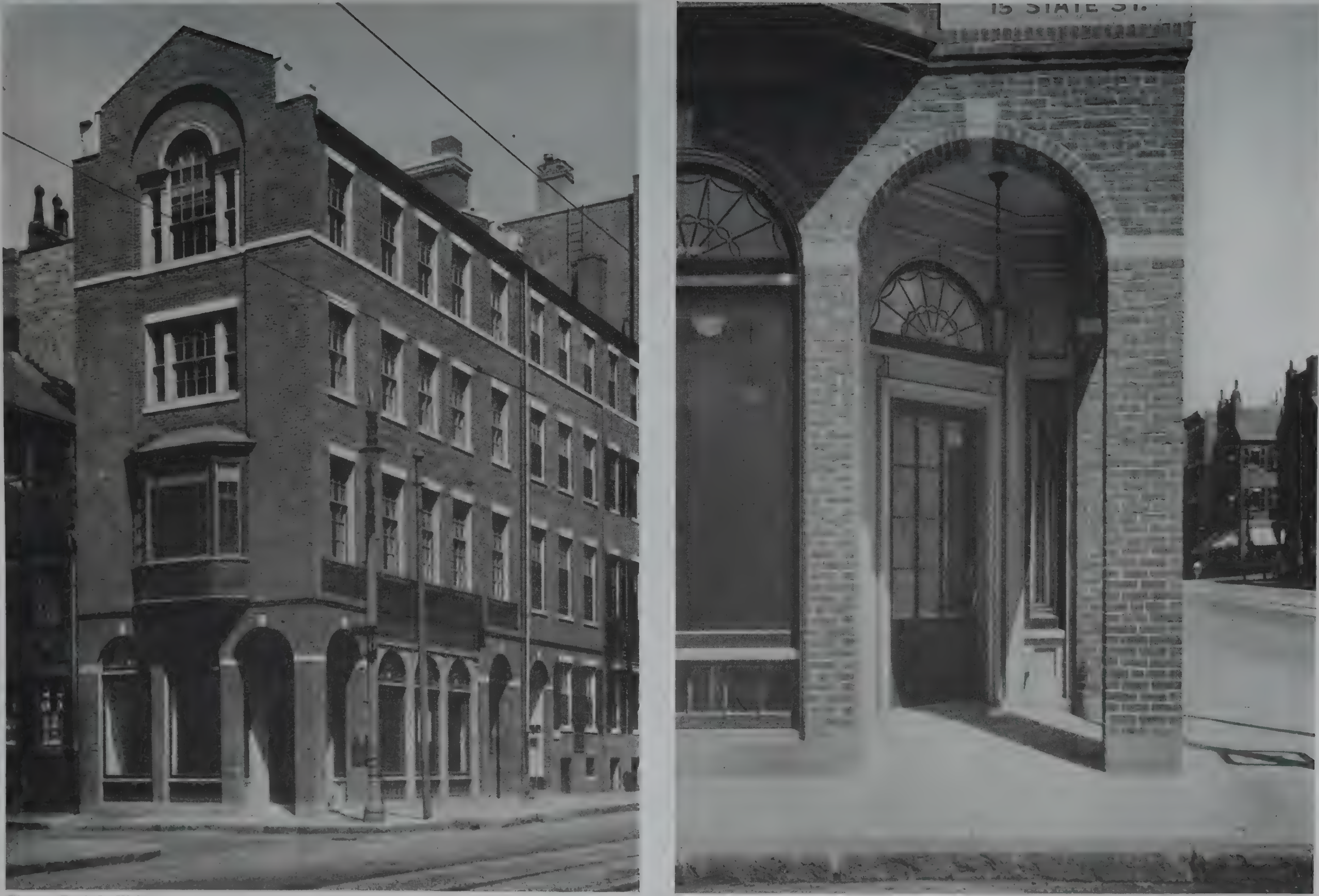
then also have a car, and she more time for window shopping. Exactly what the manufacturers and architects had always claimed! But New York people do not like to be told! They must discover things for themselves! With the demand came the supply. The order is rapidly changing. At the time of writing, however, the change is still far from complete.

Unlike the suburbanites, who made the change at one jump, the city dweller must go cautiously, step by step. The dining alcove has come to stay; no three- or four-room apartment can be rented without it. The concealed bed is also now fairly generally accepted. The dining room in smaller apartments is a thing of the past; the guest room is no more. The floor plan shown on page 148 is from a recent efficiency apartment building erected in the suburbs of New York. It was completed lately, and was entirely rented before ready for occupancy. The illustration shown on page 147 is of one building of a larger development, recently completed on upper Manhattan Island. In it are installed all modern devices, such as electric dish-washing machines; iceless refrigerators; incinerators; radio connection from each living room to a central plant; automatic elevators; dining alcoves; dressing rooms and concealed beds. The three-room apartments provide the efficiency of a five-room apartment for no more than the three-room rental. The same is true of them all. New York has been converted. The loaning companies, realizing at last that any decided cut in the cost of construction is no longer to be hoped for, and aware of the great financial returns brought in by buildings of this character, are now doing much to further the movement and to hasten its growth.

The rapid spread and the final acceptance of the movement are inevitable. The people demand more time for leisure and hence more money for the pursuit of it. Both are provided for by this movement. Conservative New York follows at last the footsteps of the more remote regions of the country. And so it is in almost every other sort of innovation,—that is, at least, if it pertains to the home life of the individual. A back door must be discovered,—the people must imagine themselves to be the discoverers! The apartment idea, in fact, has had to force its way in America, and people in many parts of the country can recall the time when the "correctness" of living in apartments at all was earnestly debated.

Sink and Stove in Model Kitchen, Hudson View Apartments

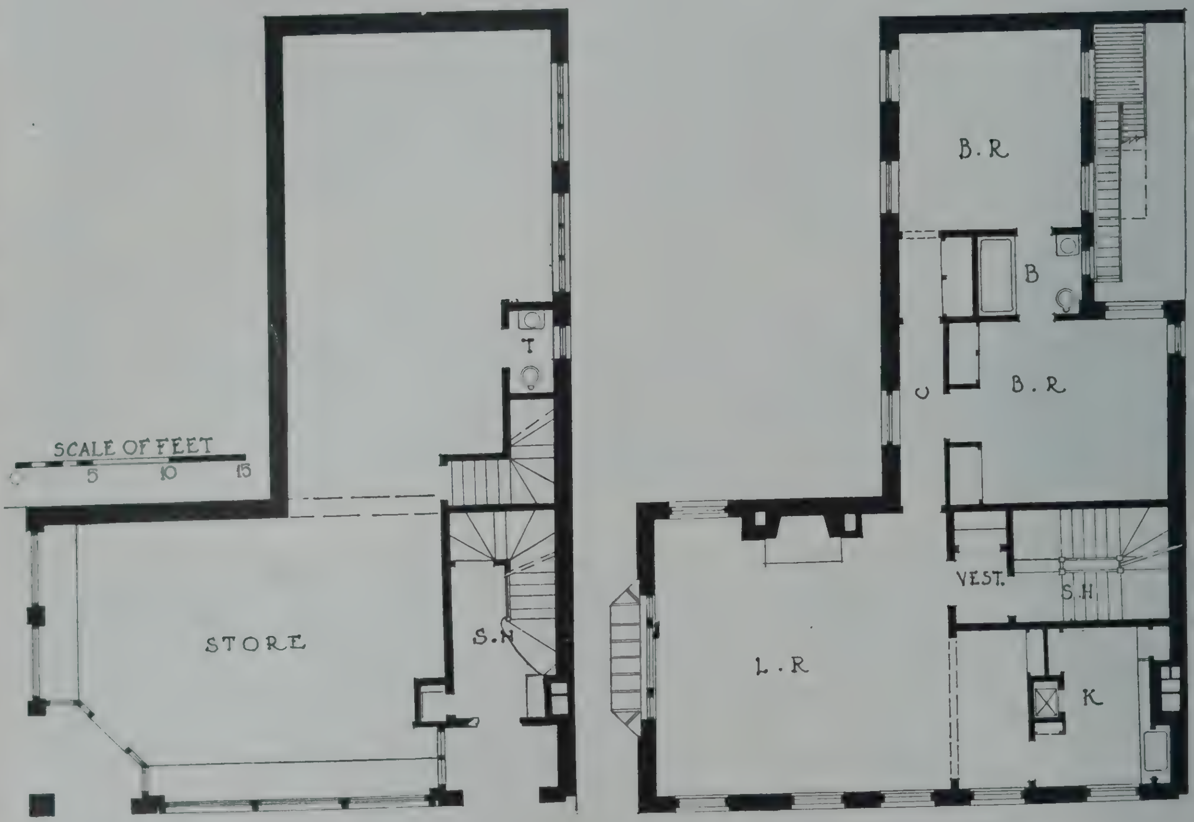
Dresser in Model Kitchen, Hudson View Apartments



Photos. Paul J. Weber

Plans on Back

SHOP AND APARTMENT BUILDING, BOSTON
DANA SOMES, ARCHITECT

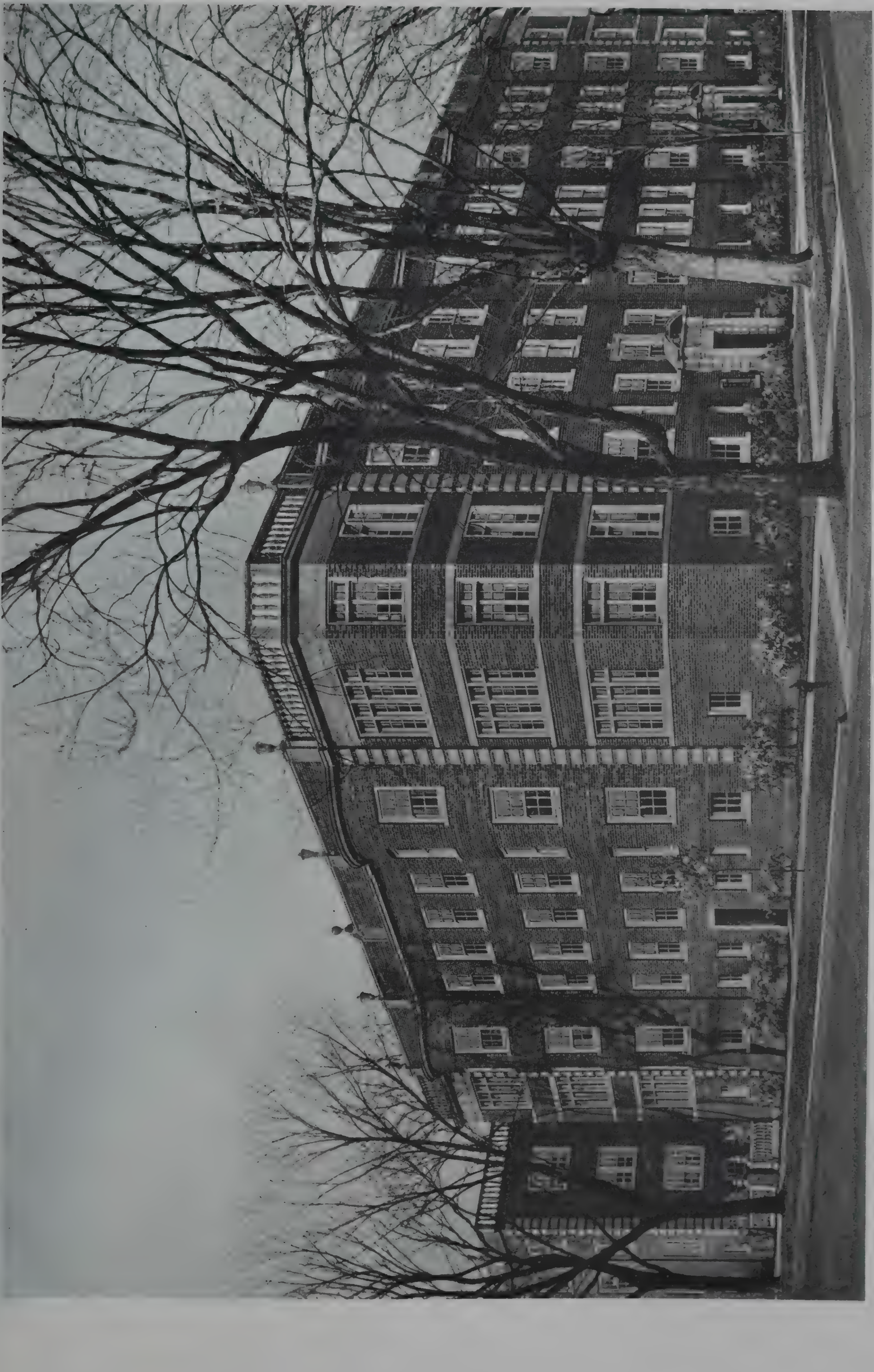


GROUND FLOOR

A TYPICAL FLOOR

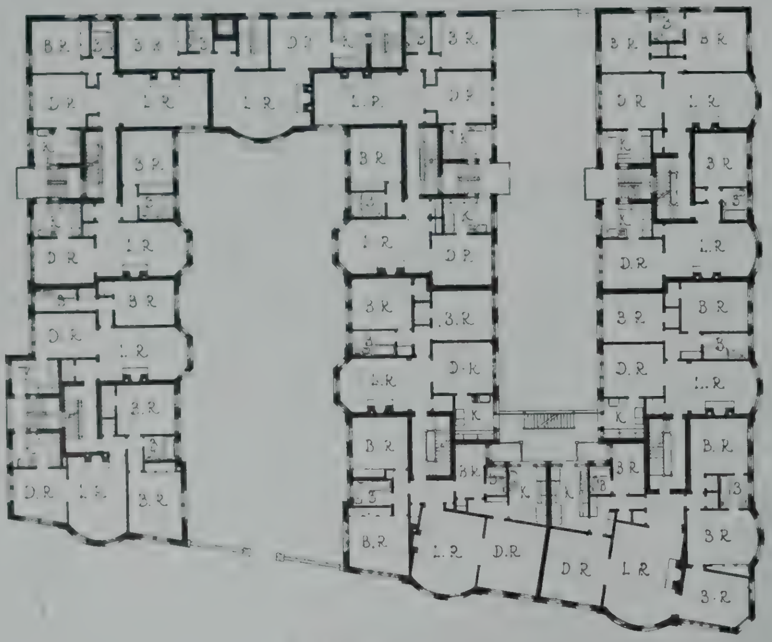
SHOP AND APARTMENT BUILDING, BOSTON

DANA SOMES, ARCHITECT

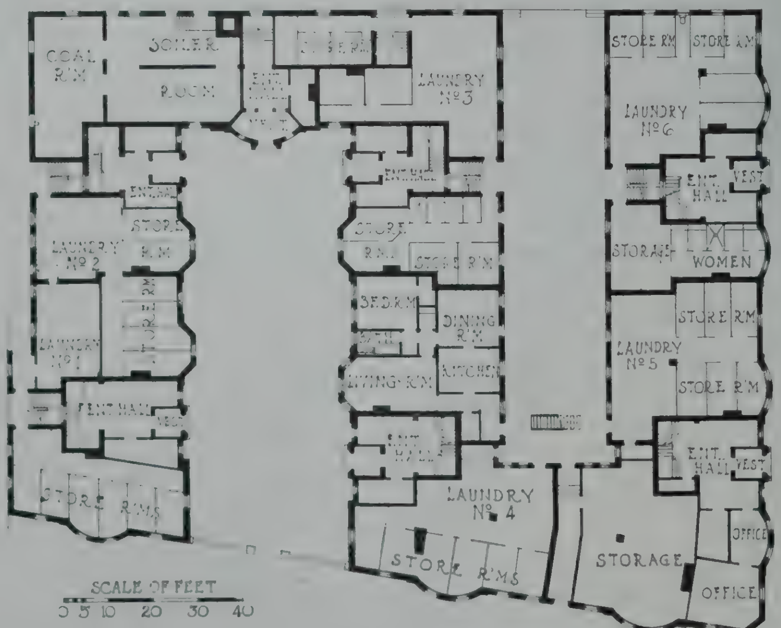


Plans on Back

NEW APARTMENT BUILDING, EVANSTON, ILL.
ROBERT S. DE GOLYER, ARCHITECT



A TYPICAL FLOOR



GROUND FLOOR

NEW APARTMENT BUILDING, EVANSTON, ILL.

ROBERT S. DE GOLYER, ARCHITECT

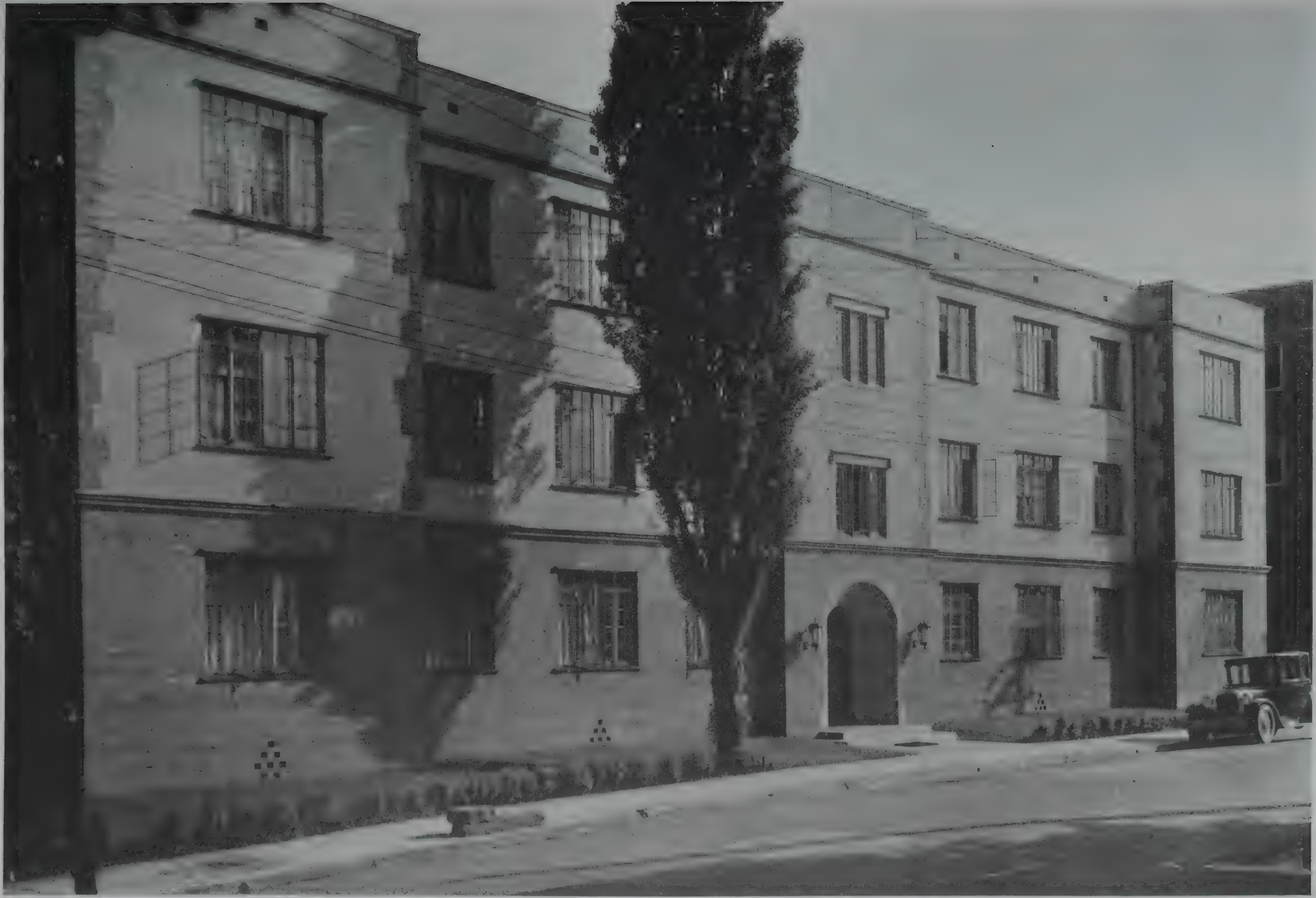
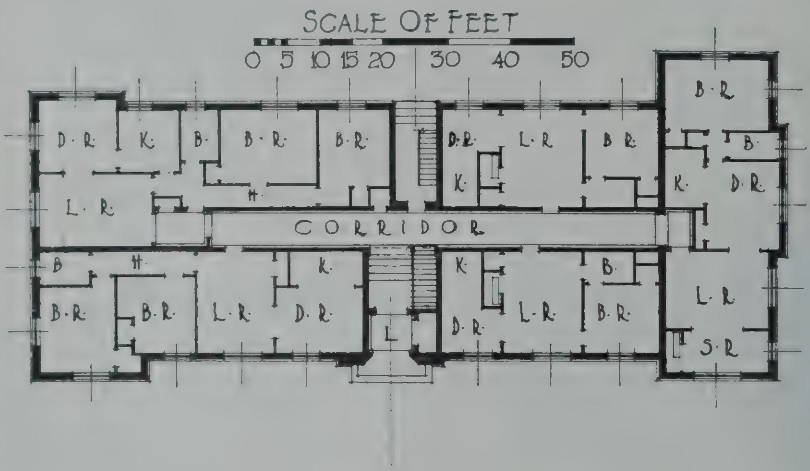


Photo. Tebbs & Knell, Inc.

Plan on Back

NO. 1634 LAUREL AVENUE, KNOXVILLE, TENN.
BARBER & McMURRAY, ARCHITECTS

BOSTON PUBLIC LIBRARY



GROUND FLOOR

NO. 1634 LAUREL AVENUE, KNOXVILLE, TENN.

BARBER & McMURRAY, ARCHITECTS

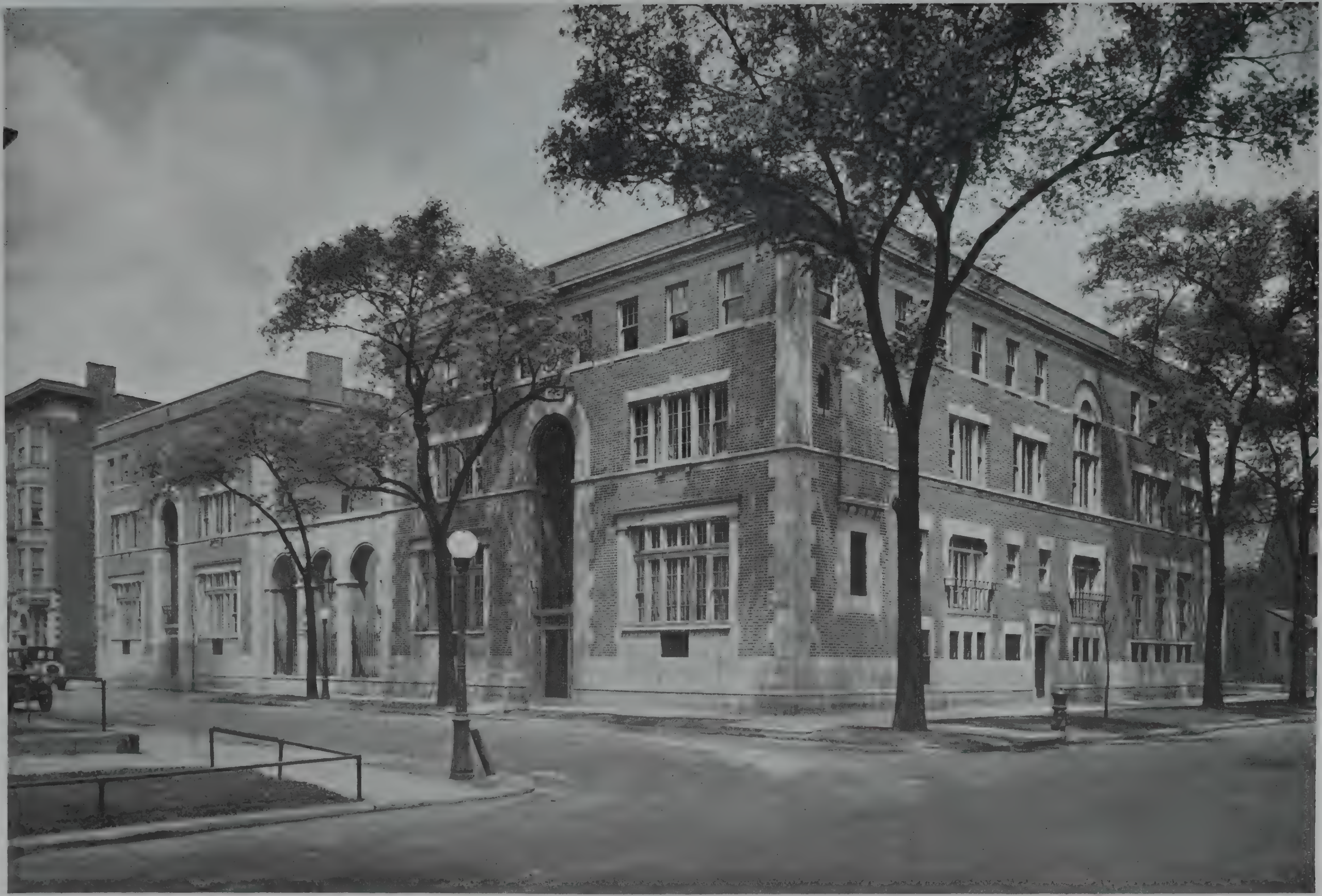
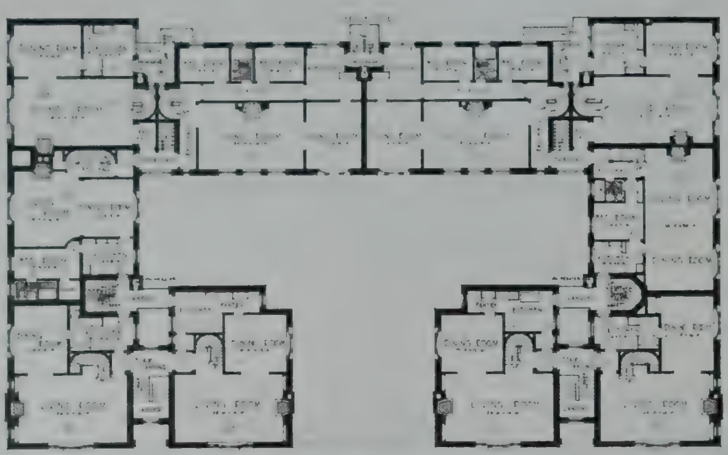


Photo. Chicago Architectural Photographing Co.

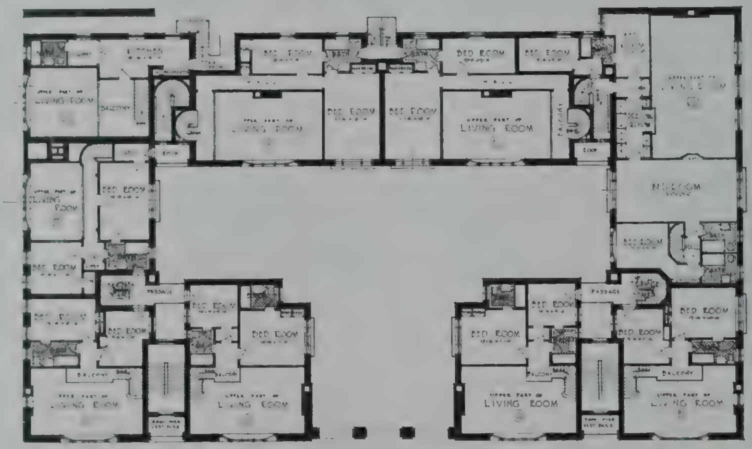
Plans on Back

THE A. N. REBORI COÖPERATIVE APARTMENTS, CHICAGO

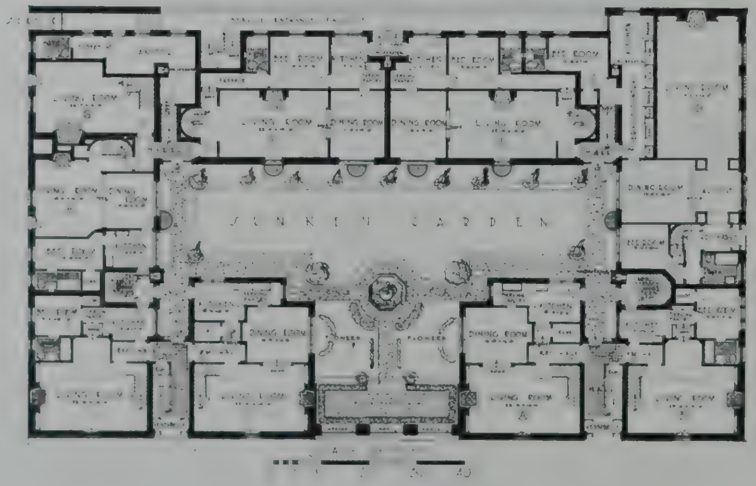
REBORI, WENTWORTH & DEWEY, ARCHITECTS



THIRD FLOOR



SECOND FLOOR



GROUND FLOOR

THE A. N. REBORI COÖPERATIVE APARTMENTS, CHICAGO
REBORI, WENTWORTH & DEWEY, ARCHITECTS

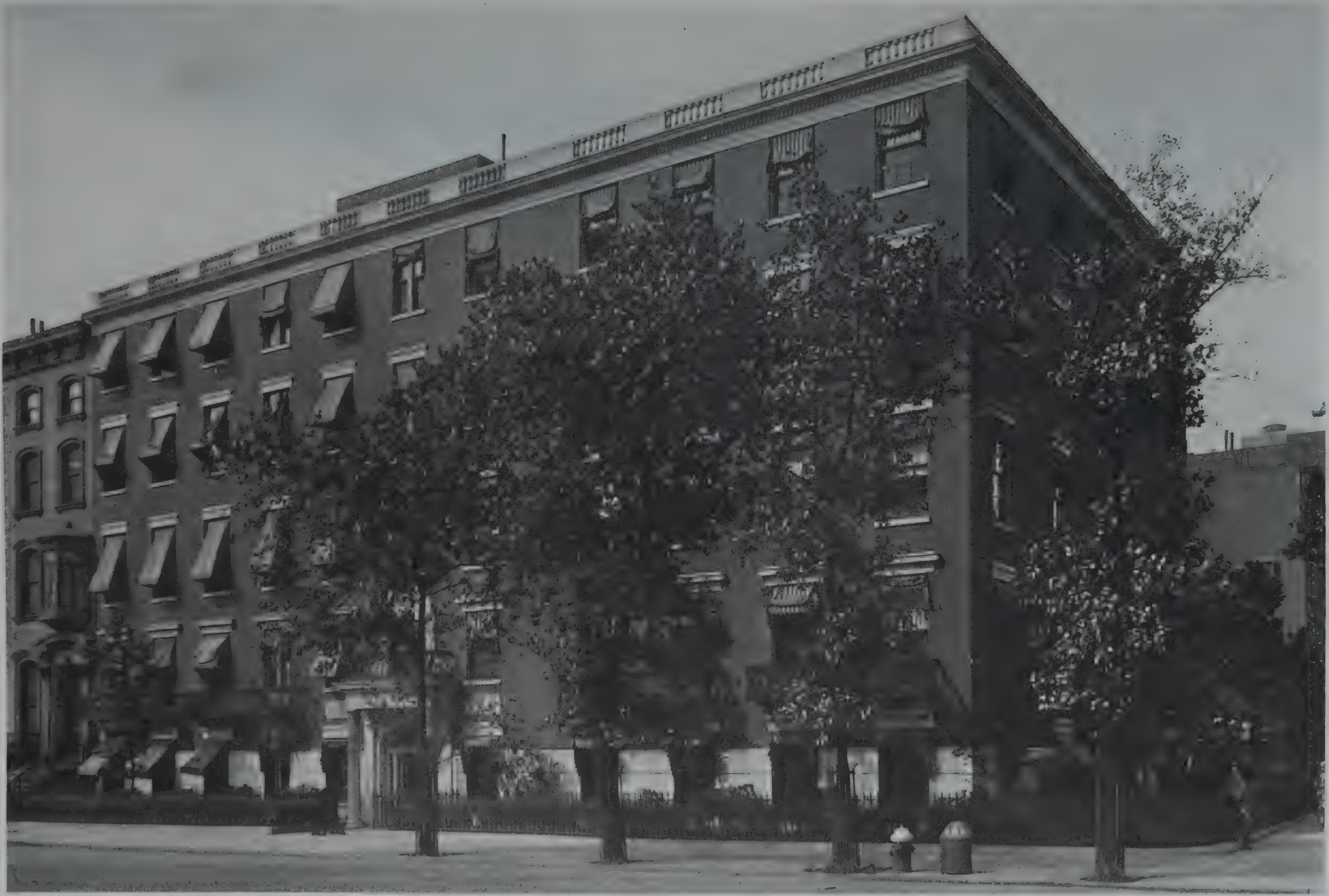
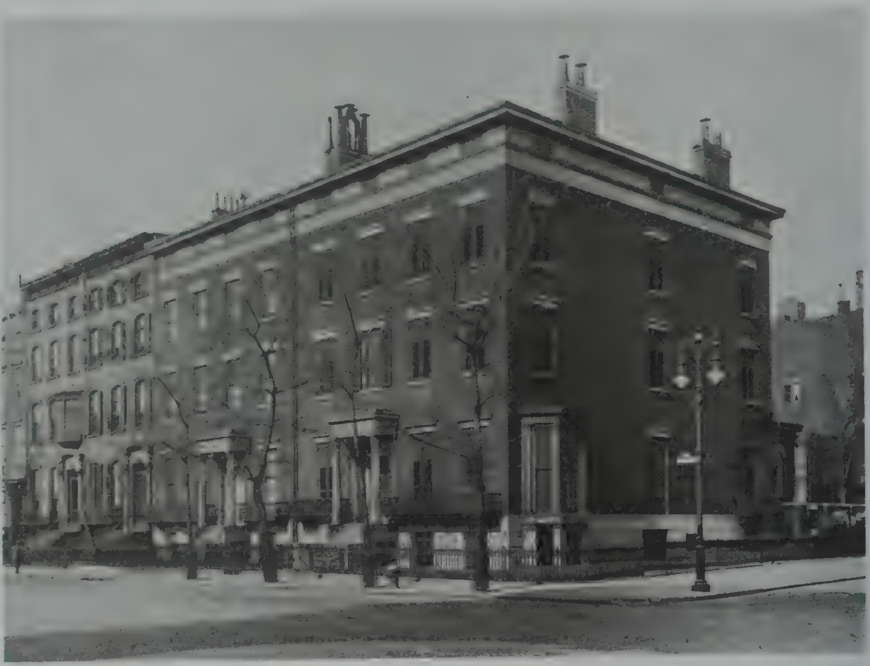


Photo. George H. Van Anda

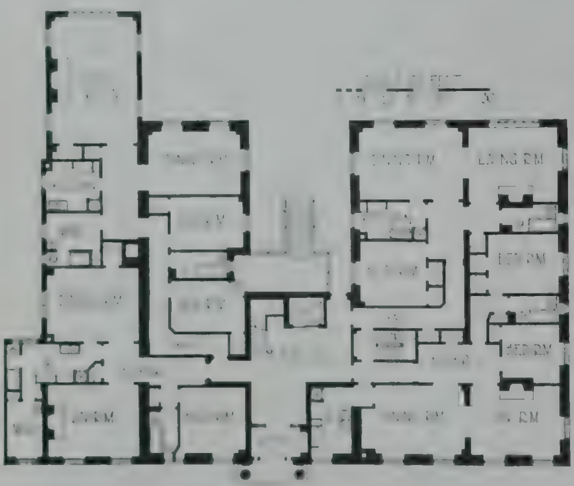
Plans on Back

RHINELANDER APARTMENTS, WASHINGTON SQUARE NORTH, NEW YORK

MAYNICKE & FRANKE, ARCHITECTS



OLD HOUSES BEFORE BEING REMODELED INTO RHINELANDER APARTMENTS



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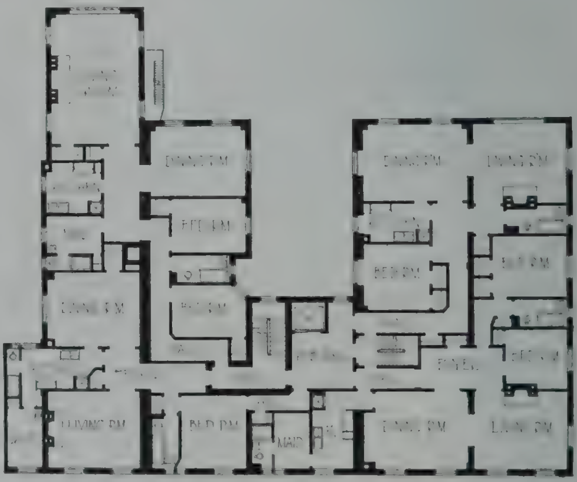
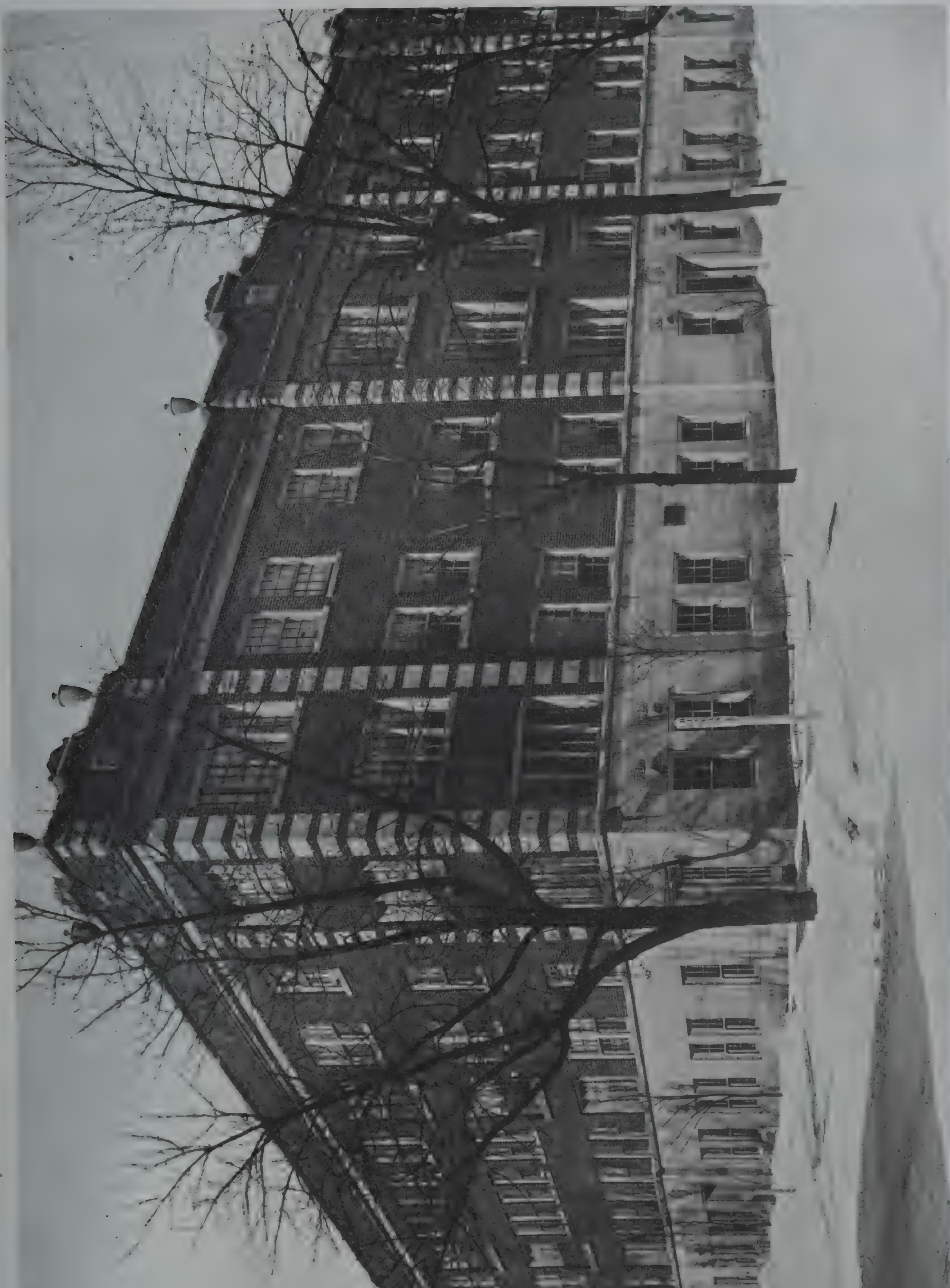


SECOND FLOOR

RHINELANDER APARTMENTS, WASHINGTON SQUARE NORTH, NEW YORK

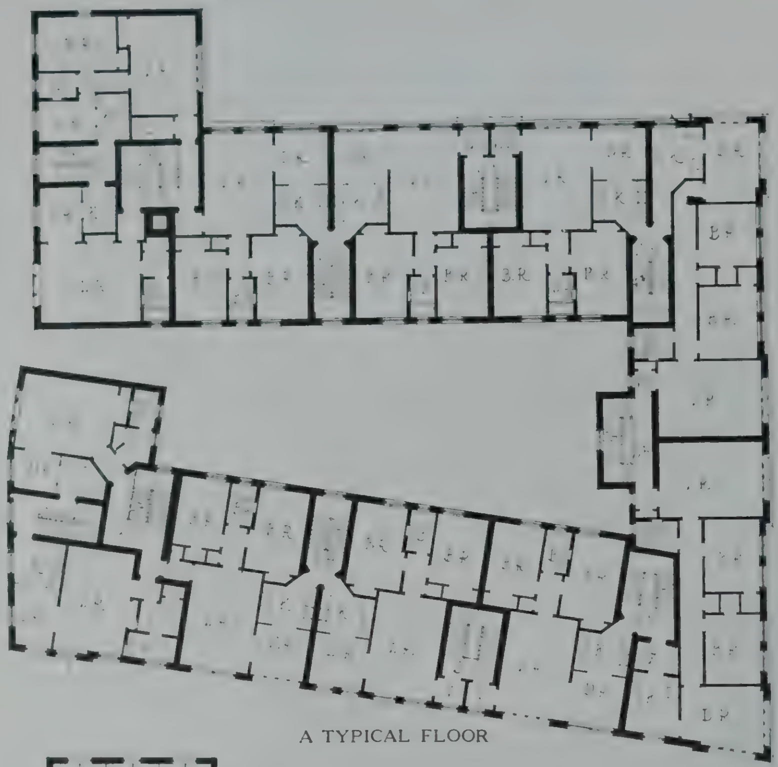
MAYNICKE & FRANKE, ARCHITECTS



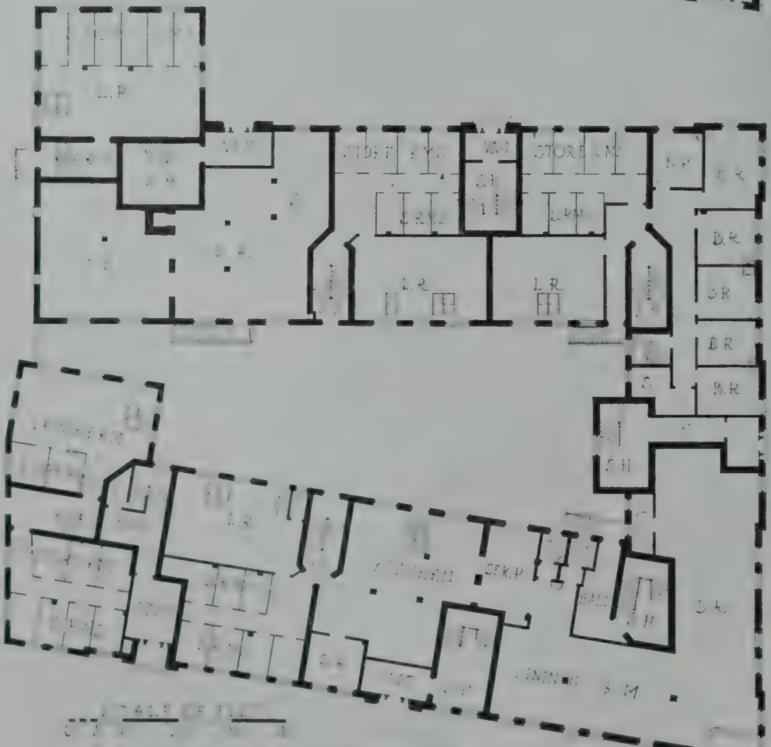
Plans on Back

CORNER HINMAN AVENUE AND LEE STREET, EVANSTON, ILL.

L. G. HALLBERG & CO., ARCHITECTS



A TYPICAL FLOOR



GROUND FLOOR

CORNER HINMAN AVENUE AND LEE STREET, EVANSTON, ILL.

L. G. HALLBERG & CO., ARCHITECTS

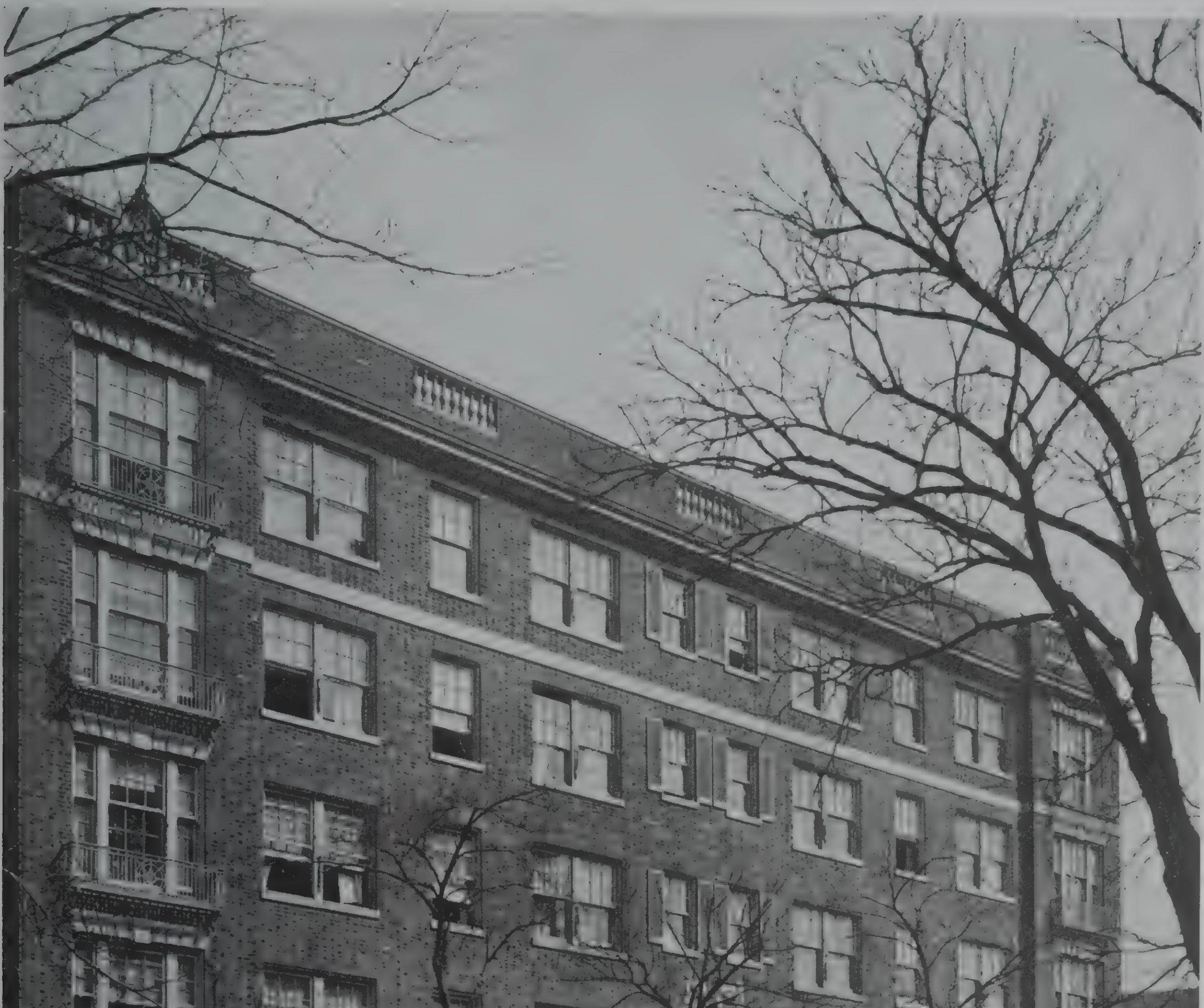
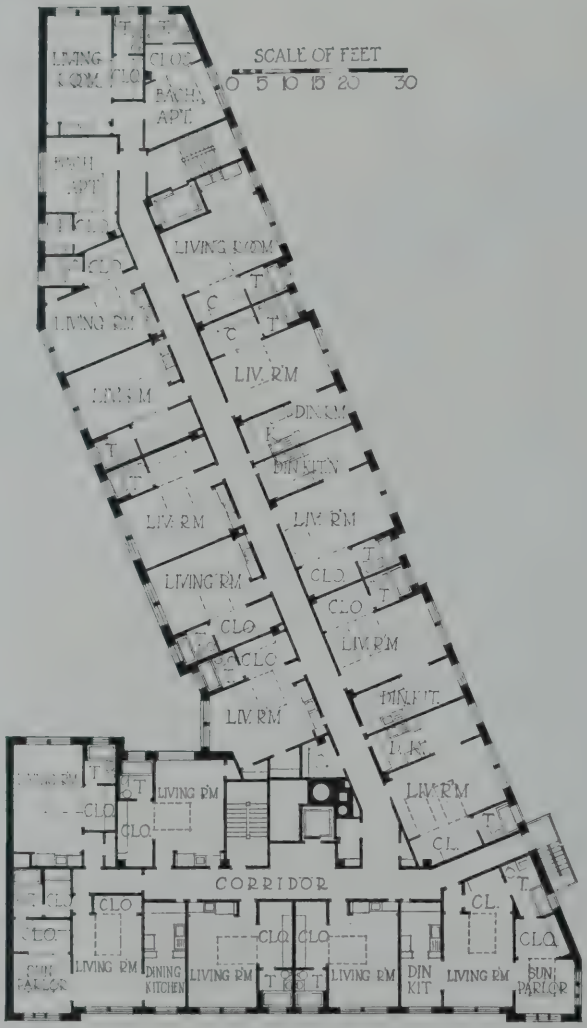


Photo. Trowbridge

Plan on Back

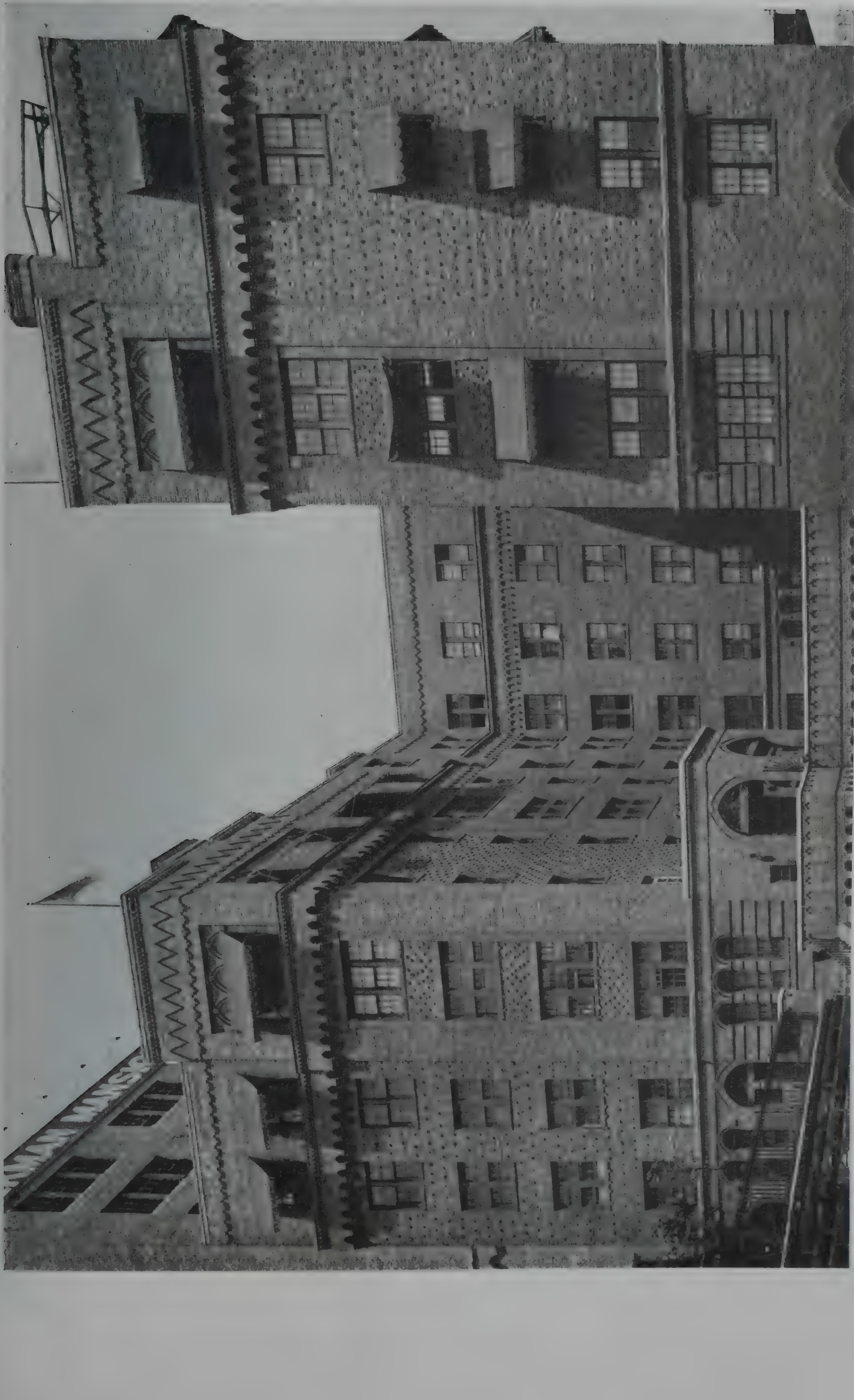
ARLINGTON APARTMENTS, CHICAGO
OLSEN & URBAIN, ARCHITECTS



A TYPICAL FLOOR

ARLINGTON APARTMENTS, CHICAGO

OLSEN & URBAIN, ARCHITECTS



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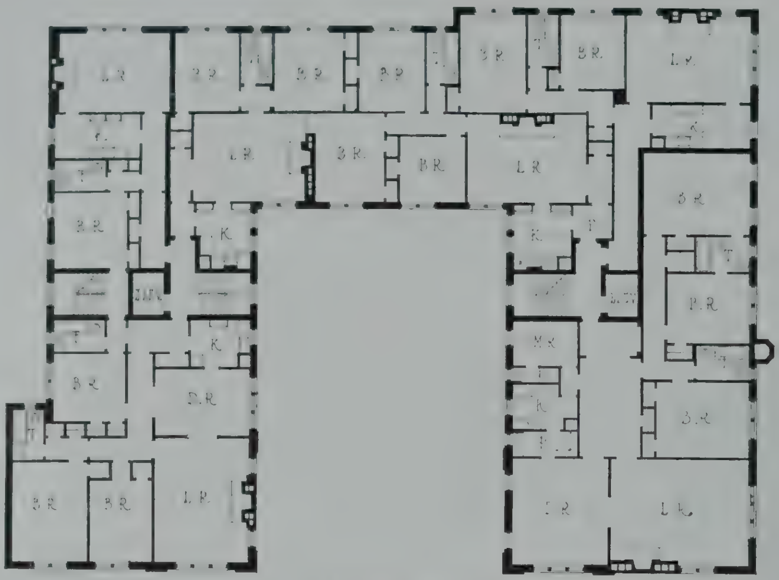
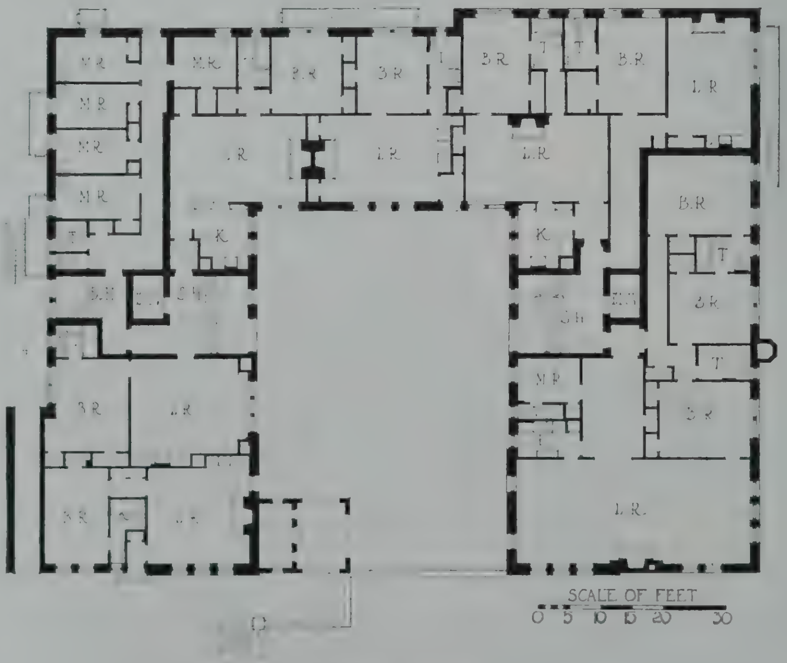
Plans on Back

BEEKMAN TERRACE, NEW YORK

TREANOR & FATIO, ARCHITECTS; J. E. R. CARPENTER, CONSULTING ARCHITECT



A TYPICAL FLOOR



GROUND FLOOR

BEEKMAN TERRACE, NEW YORK

TREANOR & FATIO, ARCHITECTS; J. E. R. CARPENTER, CONSULTING ARCHITECT

New Features in Apartment House Building

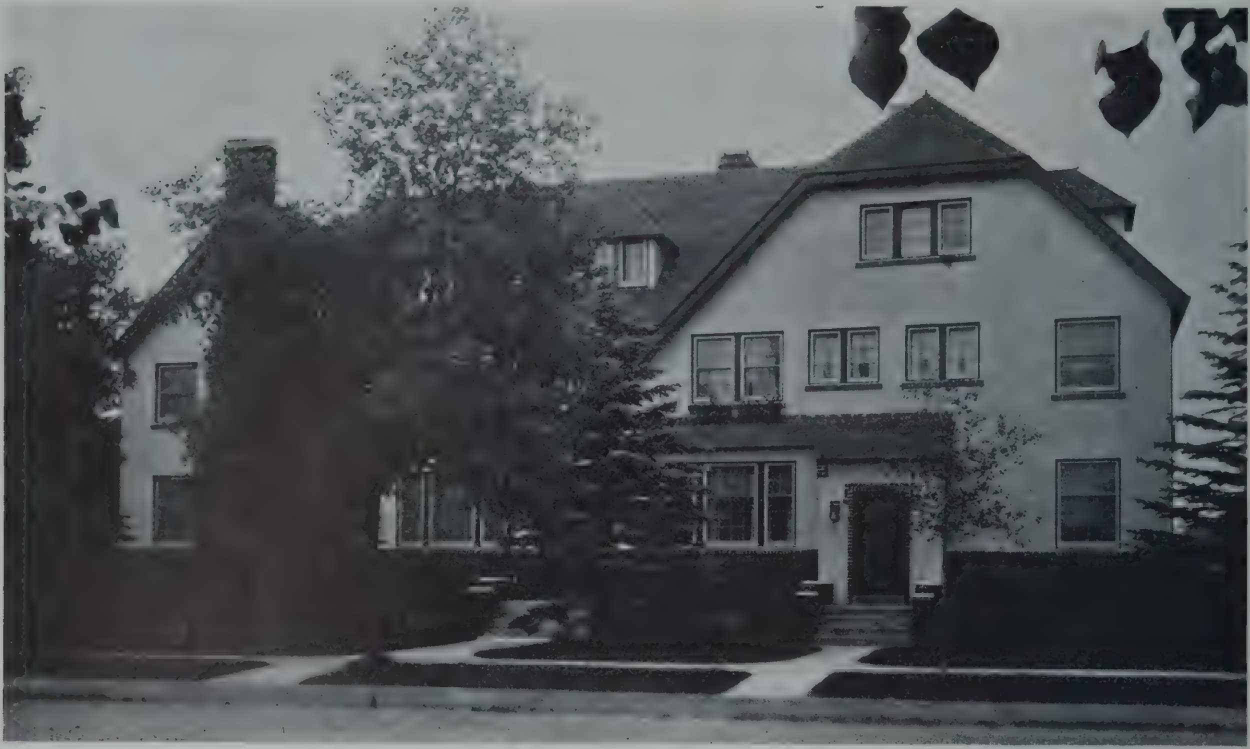
By A. E. MAC DOUGALL, *President, The Queensboro Corporation, New York*

APARTMENT houses with the new features which I shall describe and discuss will provide the better homes which people today are demanding, and will thus help to solve the housing situation in many large American cities. The accelerated growth of apartment house building generally has been brought about by increased expenses and difficulties of maintaining individual houses. The problems of servants, coal, furnace attention, garden and general upkeep have been found by a great many householders to be intolerable. This condition has been nation-wide, and has resulted in the building of many apartments throughout the country, apartments large and small, of different types.

I suggest that the real estate profession take a leaf from the book of the automobile business, and each year bring out a better product to improve this situation! There are two essential new features of these apartment houses. From the economic standpoint, the apartment will be sold on a coöperative basis to its tenant-owner. From a structural standpoint, it will have an interior garden with all that it implies and connotes. The builder who fails to recognize at this time the need of providing houses of a type that make for economy of use as well as of cost, fails to meet the demands of the public. The architect of apartment houses must also provide in their planning for all the advantages, such as those of location, which the highly restricted, beautiful residential districts of Cleveland afford. These new features have already been put into use in the garden apartment development at Jackson Heights, New York. If I speak later of this particular development, I do so only in order to deduce from a successful experiment the general principles which must apply in the solution of the entire problem. Let me tell you how these new features were developed and made important parts of the plan.

First, however, let us describe, for the sake of later comparison, the Park Avenue district of Manhattan, which is in a way typical of the better apartment house districts of other cities. It is the section most sought after by wealthy people in New York, and it is where the most expensive types of apart-

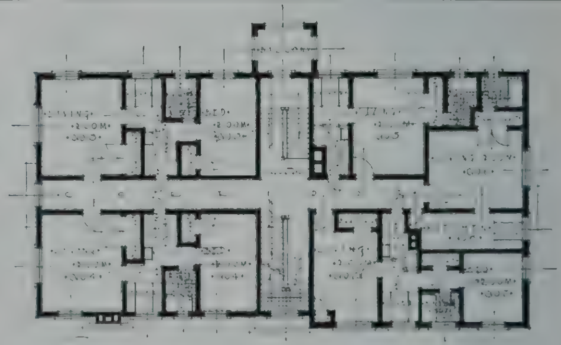
Guilford Manor Apartments, Baltimore
Edward L. Palmer, Jr., Architect



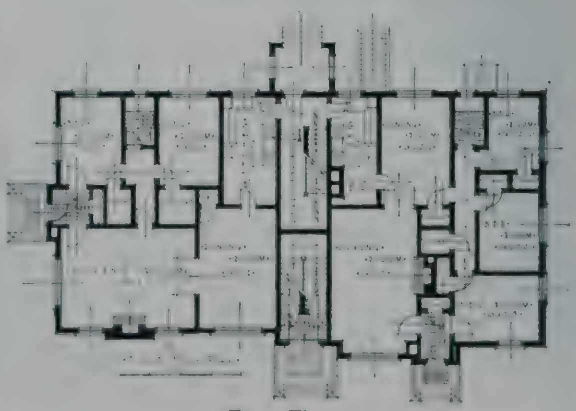
Apartment Building at Laramie, Wyo.
Wilbur A. Hitchcock, Architect

ment houses are now being built. Land values there are very high. On the streets leading off Park Avenue, which do well for purposes of comparison, the apartments are of 6, 7 and 8 rooms. Even the relatively high cost of land per family is based on the use of from 70 to 80 per cent of the plots' area. The buildings sometimes shelter several hundred families. It is necessary, in that neighborhood, to cram in just as many human beings as can be persuaded to live there, on a given area of land. In

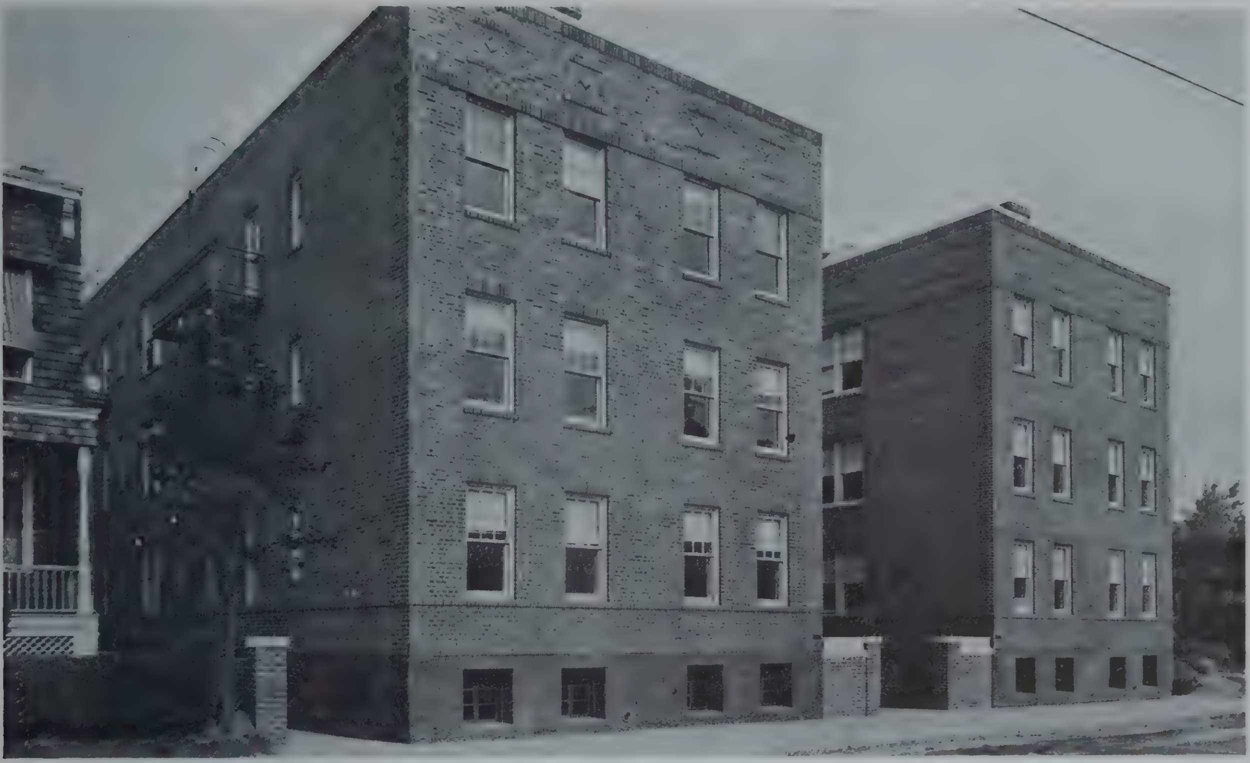
An Entrance at Laramie, Wyo.



Second Floor

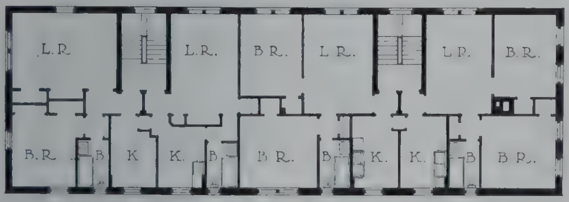


First Floor

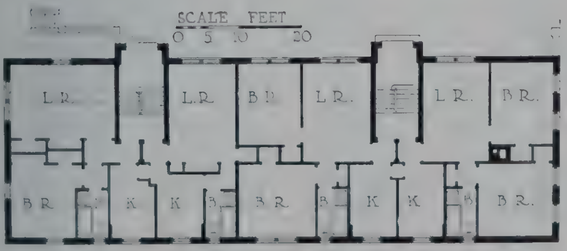


Apartment Building, Long Island City, N. Y.
Charles A. Sandblom, Architect

these Park Avenue buildings of the best type the apartments, particularly those which face the streets, have good light and air, but many of the rest, those on the sides and rears, have narrow outlooks on small courts. Custom leads people to put up with these conditions, but comparison with the individual house is inevitable and unfavorable. Then, too, many of these Park Avenue properties depend for their light and air on their neighbors. There are still many low buildings in this district. As soon as they

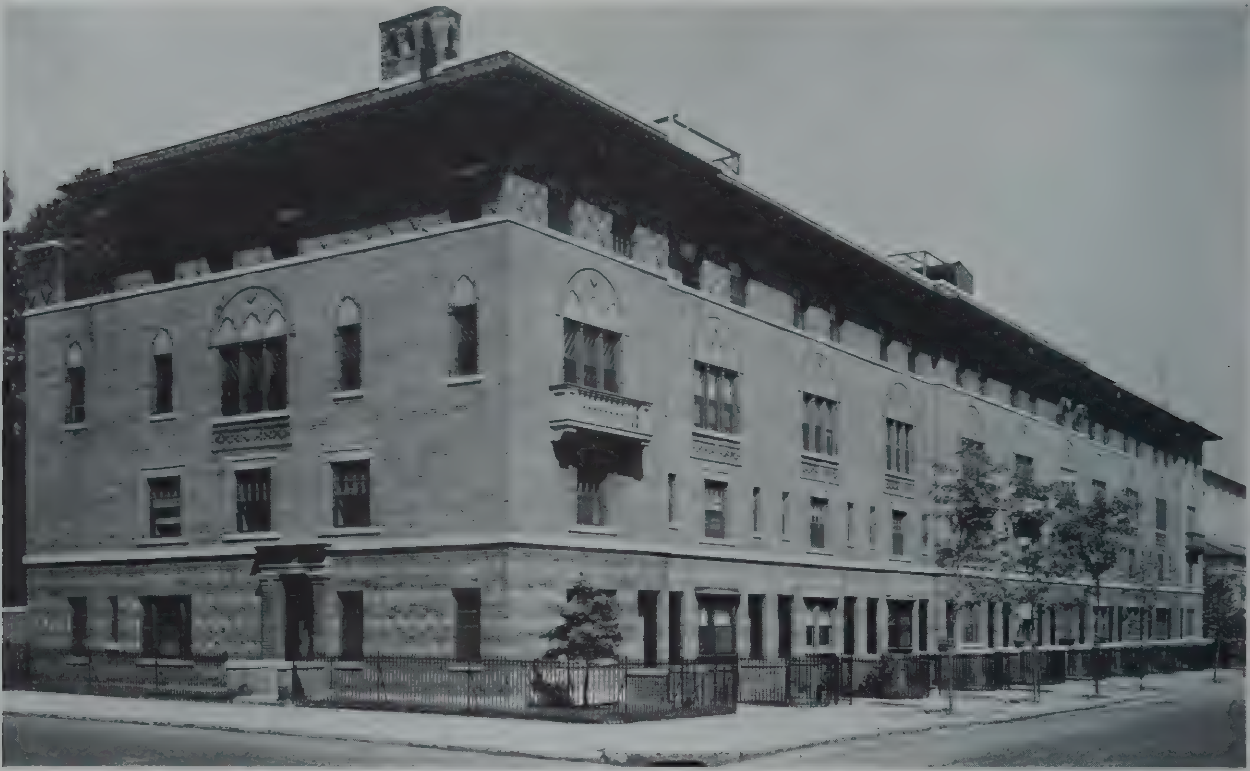


Second Floor



First Floor

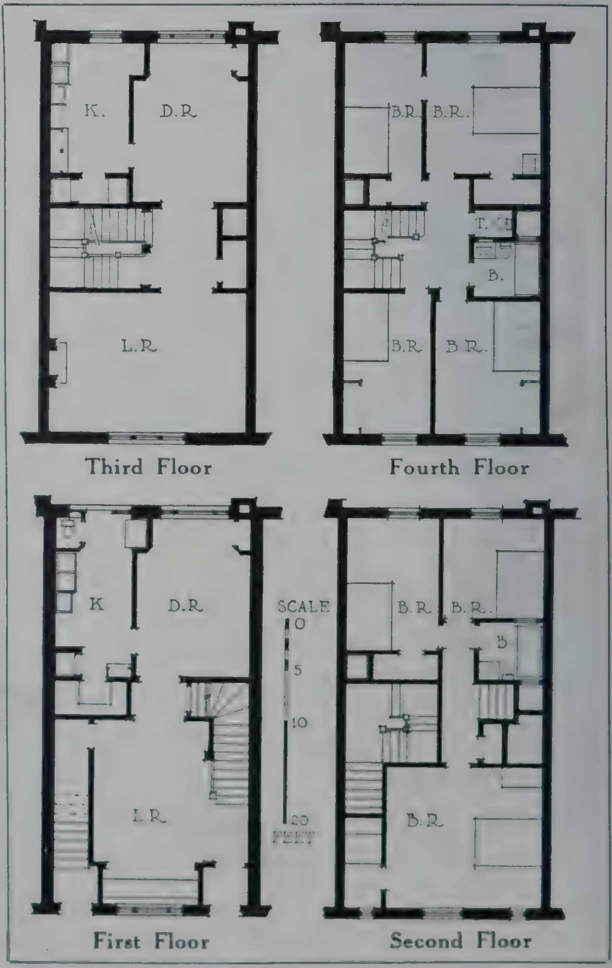
An Entrance at Long Island City



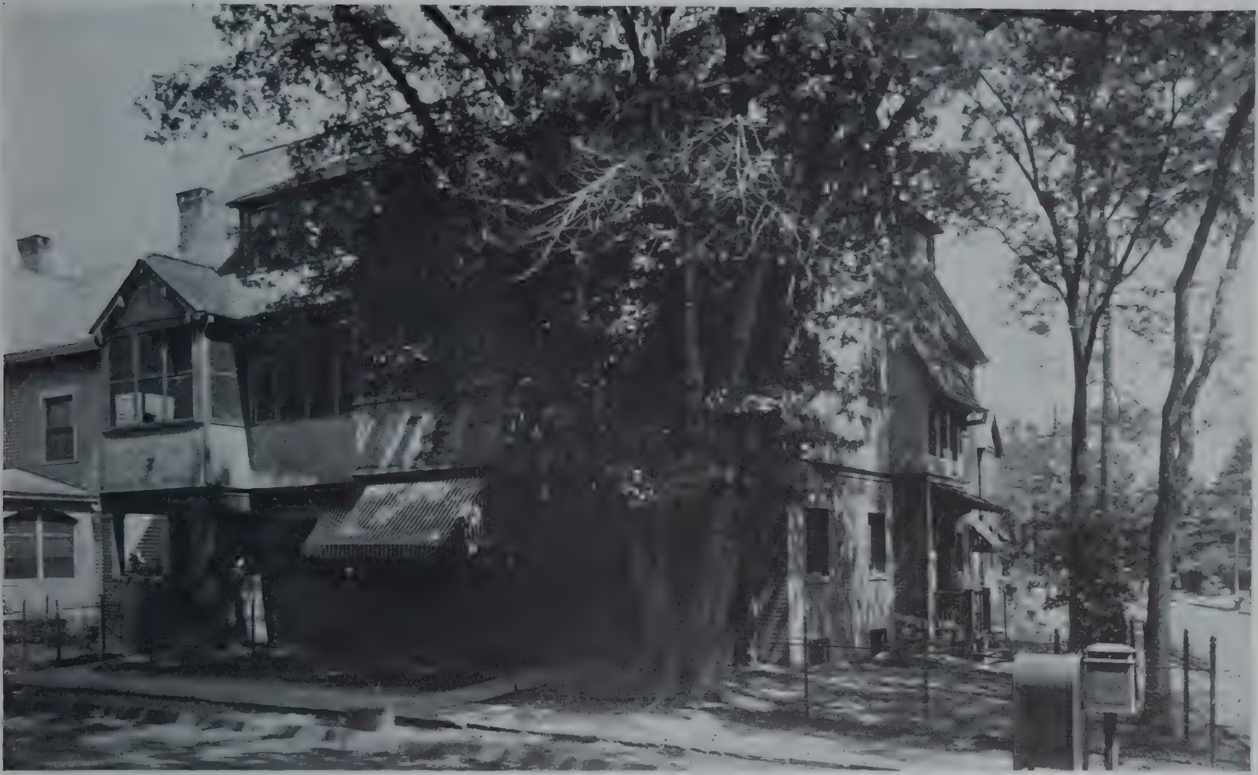
A Block of Two-Family Houses in Brooklyn
Mann & MacNeille, Architects

are "scrapped," as they are bound to be, and the neighboring properties are improved, many of these luxurious apartments, now bringing high rentals, will lose their sunlight and outlook, and their rental values will be heavily depreciated or perhaps ruined.

At Jackson Heights we have not the same hampering restrictions as has the Park Avenue district. Where the land is already well built up, adequate plots are difficult to obtain, and where the land is excessively costly, it compels building high into the air. We control a tract of land about one-half as large as Central Park which was farm land within the memory of people still living. We have developed it from raw land, and built as large groups of buildings as was possible, whether from the point of view of design or of economy of construction. We have learned, as one result, that a city block is the best unit for an apartment building. By studying the cost (per family) of the land used, and keeping in mind that we must compete with the individual house, we have discovered that we can build over 38 per cent of the lot area, covered with 7- and 8-room apartments, only six stories high, and yet create a wonderful garden and open space. We can build in small units with only two families to a floor, assuring privacy. Each apartment has three or four exposures, like a country house. The principal rooms and some of the bedrooms are corner rooms, and the spaces between the buildings are 36 feet, 8 inches wide, so that the buildings are separated, not so much by passageways as by lawns. These side lawns open into a vast interior garden, running the



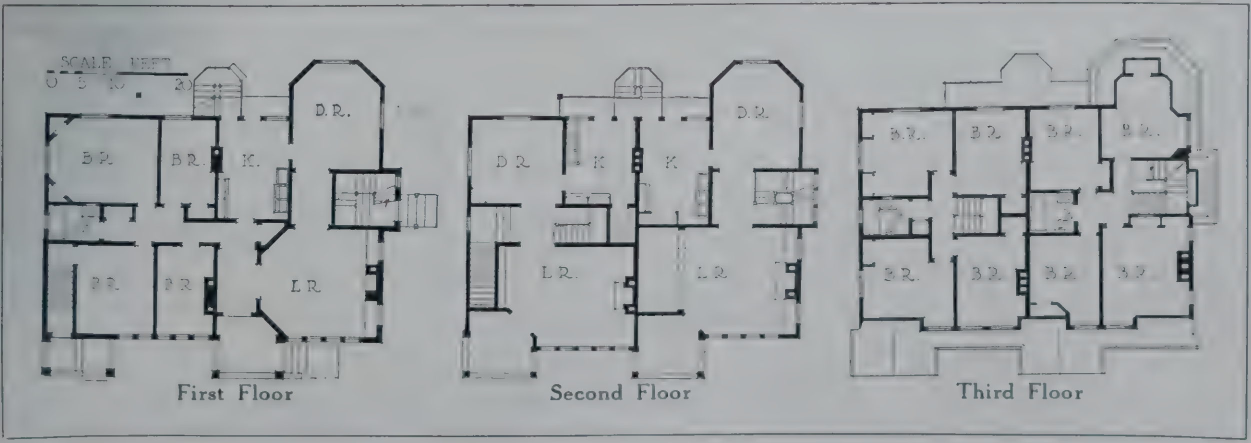
Third Floor
Fourth Floor
First Floor
Second Floor



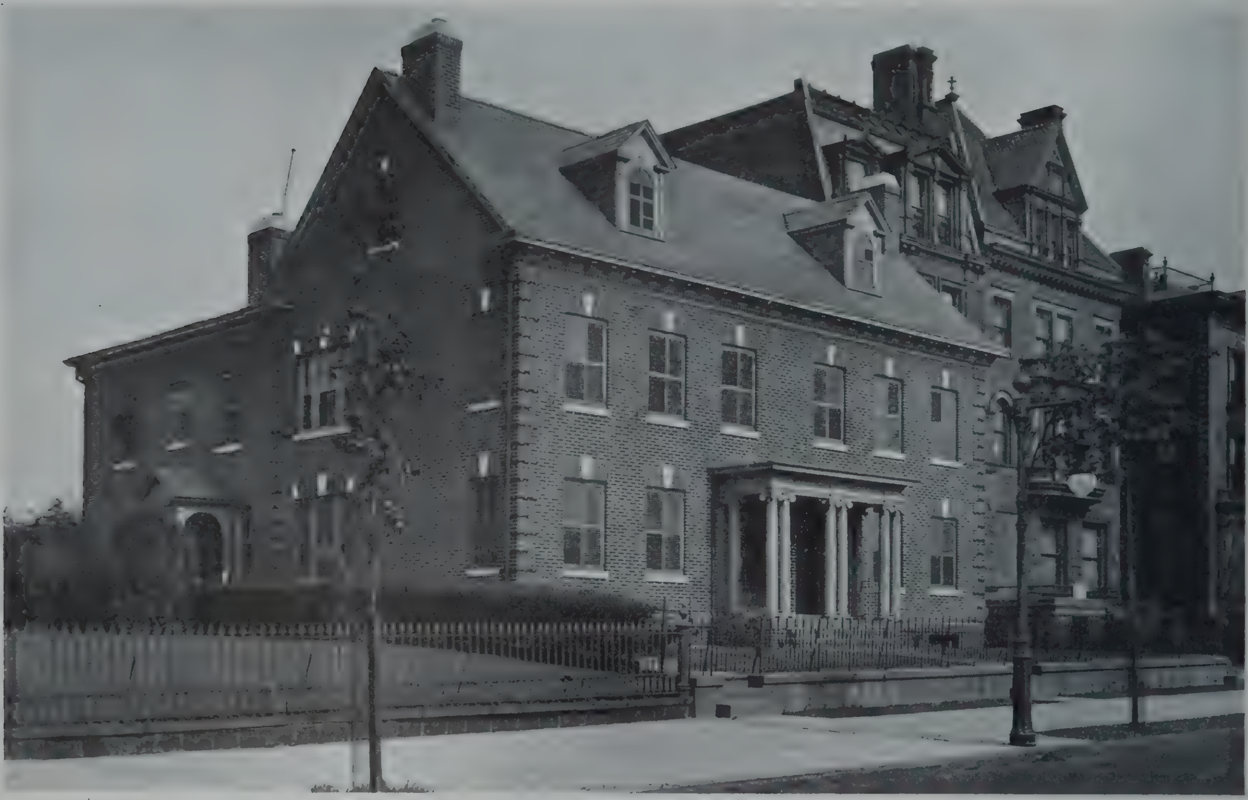
A Three-Family House at Orange, N. J.
Mann & MacNeille, Architects

whole length of the block, 80 feet or more in width, providing an outlook and a garden character which is unthinkable in Park Avenue. In fact, it can seldom be found anywhere, save on the largest country estates. It can scarcely be imagined in the city,

Briefly, here is the story of how we have improved the type of apartment, year by year, which it will be recalled I said at the start, is essential if the housing desires of the people are to be met. In 1920 we built a block of 12 four-story "walk ups," apartments designed by Andrew J. Thomas, in which the passageways between the buildings were 15 feet wide. The kitchens and fire escapes and some of the baths were on these passages. These spaces added greatly to the value of the apartments, since in summer they did much to create a circulation of air and to admit sunlight to the group. This group occupied about 40 per cent of the area of the block. These buildings attracted to Jackson Heights many people who wanted more luxurious 5- and 6-room apartments with larger rooms than could be had in the earlier apartments and we, accordingly, had Mr. Thomas design the group of apartments called the "Chateau." We carried up the buildings to five stories, two apartments to a floor, using pushbutton elevators. We reduced the area occupied by increasing the side spaces between the buildings to 19 feet, 6 inches in the shortest dimension. The buildings were fireproof on the first floor with fireproof exterior walls, roofs, and elevator and stair wells. This proved successful, and as a result we have now under construction a third improvement, our "1924 model." In this group the apartments are of 7 and 8 rooms on an average. We retained the



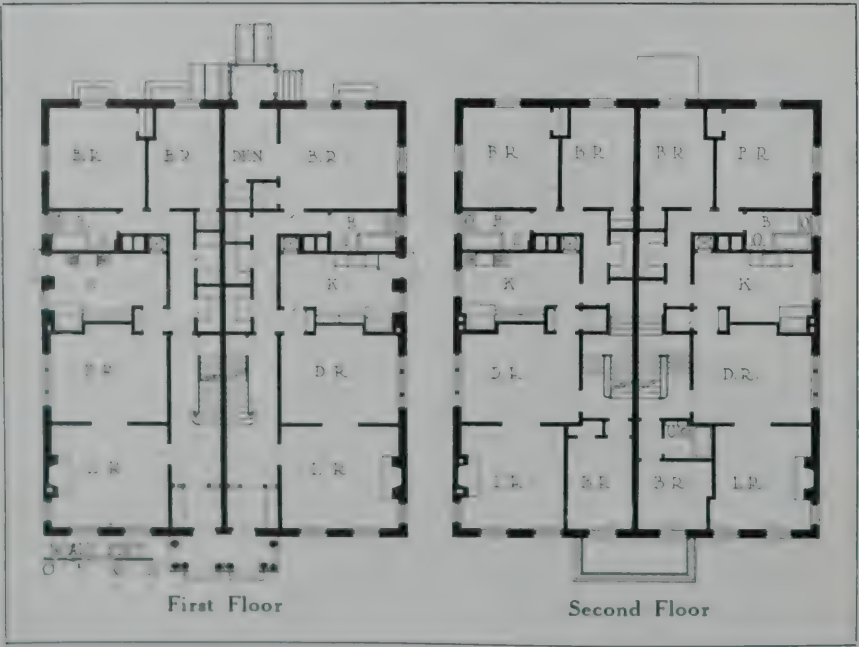
First Floor Second Floor Third Floor



A Building Containing Four Apartments, Brooklyn
Note Domestic Character of Architecture

general plan of having two apartments to a floor, and improved upon the older group in every respect that we could think of, whether it was in planning the arrangement or in little details and refinements of construction and specifications. The big improvement was in adding another story, in making the buildings fireproof, in placing the buildings 36 feet, 8 inches apart, and in making the area occupied by the buildings 38 per cent. We feel that we now have a model which has all of the advantages of the Park Avenue apartment without its weakness, and which really competes with the individual house, since it possesses all the advantages of a separate house.

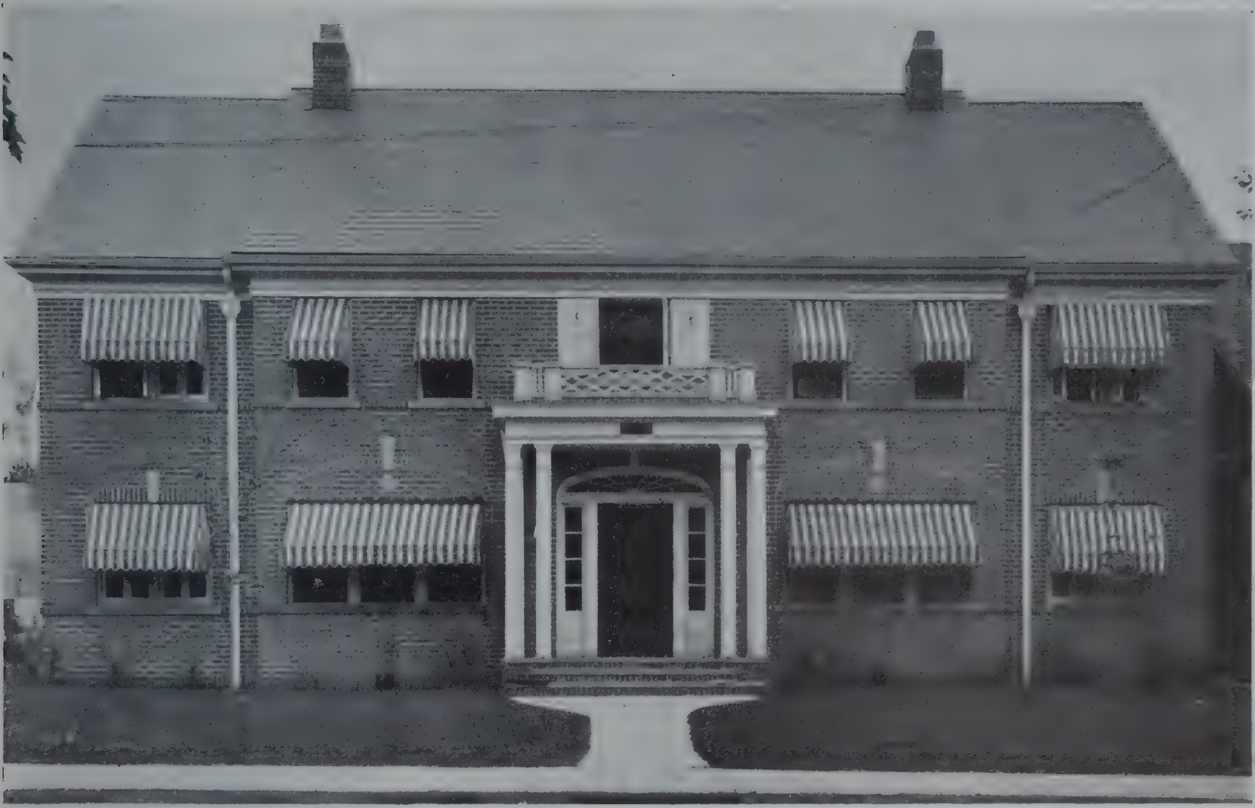
Since the war the increased cost of renting has become so great that many apartment dwellers have been unable to keep up their apartments. Caught between the expenses of private house ownership and the expenses of rental of an apartment, apartment ownership by tenants has been a natural solution and should continue to be so. Tenant ownership in itself is not new. It goes back both in this country and abroad to the time of the first apartment building. In some instances in the early days perpetual leases were given to tenants. These leases became very difficult to handle as death and changes introduced complications in the original ownership of the buildings. But here too American ingenuity gradually overcame difficulties, and developed a mode of procedure.



First Floor

Second Floor

Nowhere, either in Europe or America, has coöperative ownership been applied in a larger way than by the Queensboro Corporation at Jackson Heights. Here, profiting by mistakes made

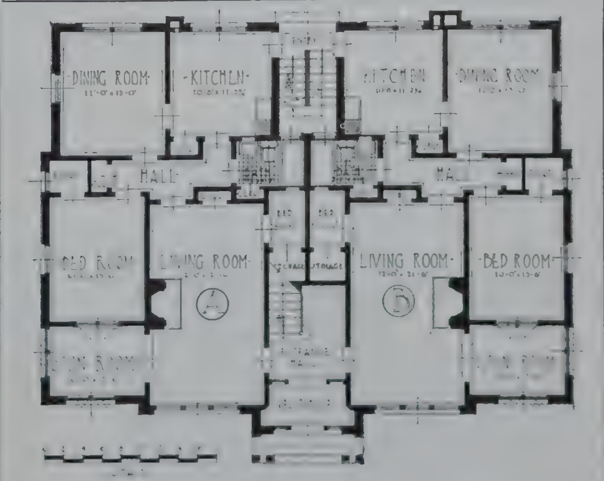


An Apartment Building at Ashland, Ky.
Tyson & Foster, Architects

in the past in the form of organization, and benefiting to some extent by the solution of similar problems in other cities, the Jackson Heights plan of tenant-ownership was evolved. This plan, although worked out independently by the Queensboro Corporation, has many points of similarity to what is known in England as the "co-partnership tenant plan." In England industrial villages were built by funds subscribed by workers and others; these workers obtained stock for their contributions, and were privileged to rent buildings in the developments to occupy as homes.

Any such plan as the Jackson Heights plan involves the organization of a company to take title to a piece of property upon which there is erected an apartment building. The title to the house and lot is in the name of the company. Its stock is sold pro rata to the persons who occupy the buildings. The occupants *lease* their apartments from the company in which they are stockholders, and thus become actually their own landlords and pay rent to themselves. No limitation is placed on the sale of the stock, but the lease, which is a yearly lease and renewable at the option of the tenant indefinitely, is a *personal* lease with the tenant and cannot be assigned without the corporation's consent. This is considered to be one of the strong features of the Jackson Heights plan, in that it prevents deterioration in the tenancy of the building by reason of transfers to undesirable persons. The value of the stock, which rests largely in the leases, is therefore effectively controlled. When the fee has been passed, in unrestricted real estate development, it has usually been found impossible to restrict the transfers of this fee, and sooner or later there is a tendency toward deterioration in the class of people living in the section. It is believed that for tenant-owners the Jackson Heights plan protects the development, so far as it is humanly possible to do so, from this deteriorating tendency which besets so much property and often causes depreciation of values.

Summed up, experience at Jackson Heights has shown the essentials of good planning of multiple-family houses to be few and comparatively simple:



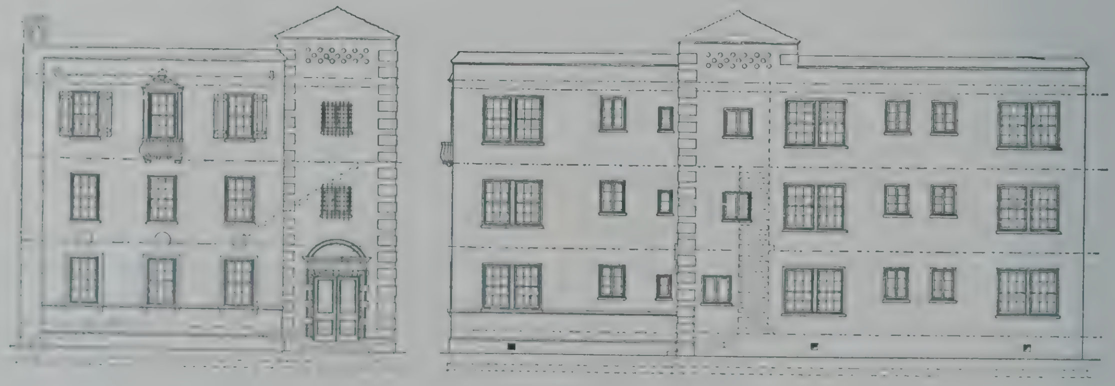
First Floor

1. Comprehensive block development, rather than the unsymmetrical and irregular heights and types of building which have heretofore prevailed in most of the apartment developments.
2. Maximum of sunlight and ventilation, insured by the erection of buildings two rooms deep on the four sides of the block, with an interior garden, the interior garden taking in the entire length of the block and being a substitute for the old type of development with its individual back yards, fences, clothes lines and other unsightly features. This immediately brings down the area of the building from 70 per cent—the maximum permitted by the New York Tenement House Law—to as little as from 30 to 35 per cent of the lots built upon. Such gardens are at Jackson Heights, 500 feet long by from 70 to 100 feet in width, and are created for the enjoyment of all the tenants.
3. Buildings are set back from the lot lines in order to provide distance between buildings and an opportunity for lawns and planting in front of the houses which compose a group.
4. The erection of detached or free-standing apartment buildings, which gives an opportunity for many corner rooms and consequent cross-ventilation in most of the apartments.
5. The silhouette produced through a picturesque arrangement of roofs and dormers, towers and other features adds a great deal to the attractiveness of the new type of apartment.

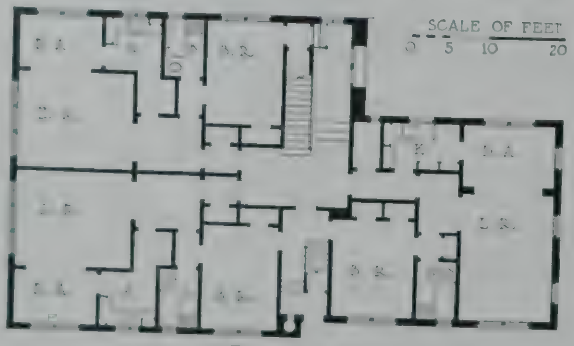
At Jackson Heights, in the "Chateau" group for instance, the roofs are of mediæval French chateau type, of vari-colored slate. "Cambridge Court" has cornice and balustrade of the Georgian type of building, with slate roof and dormers of the Colonial character of the eighteenth century. The inspiration was to some extent derived from the freshmen dormitories of Harvard, along the Charles River, which were given a noted American application of the Georgian style, suitable for such use.

The movement toward coöperatively owned apartments of attractive and conventional design is, of course, not confined to New York. While it has taken hold to a large extent in New York, it has been tried in other cities in the United States, largely because of the success which the plan has met with at Jackson Heights, where over 1,100 tenant-owners are now living in over 100 buildings.

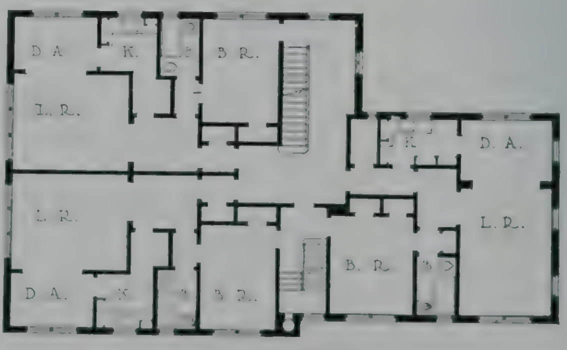
In Europe, tenant-ownership is of older standing than in this country. The growth of the plan has been rapid in Paris, for the same reasons which have caused its growth in New York,—high rents, scarcity of accommodations, and the feeling on the part of the former renter that he was spending too much for rent with too little to show for it. This tenant-ownership movement has also spread to Germany and to the Scandinavian countries, where many handsome apartments are coöperatively owned. This plan may be said to make possible the comfort, ease and economy of apartment living with ownership's freedom and feeling of independence.



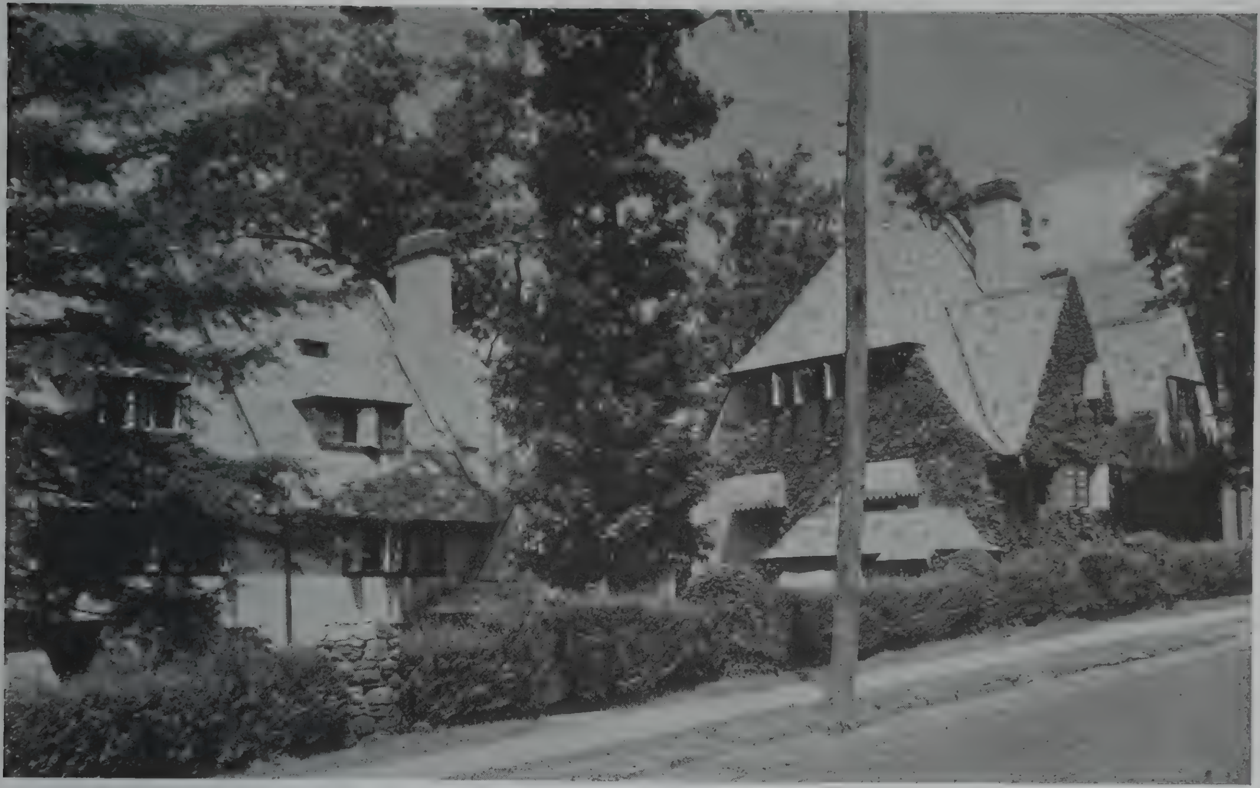
Elevation



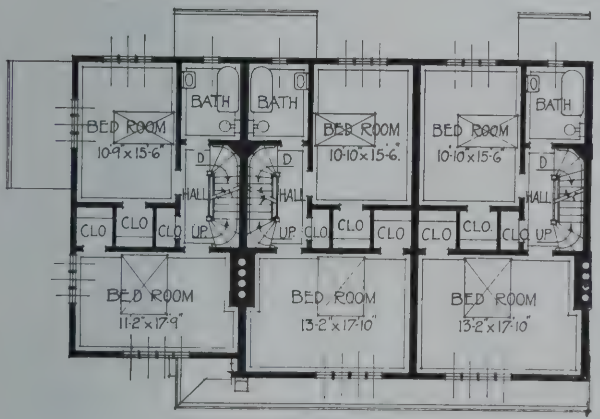
First Floor



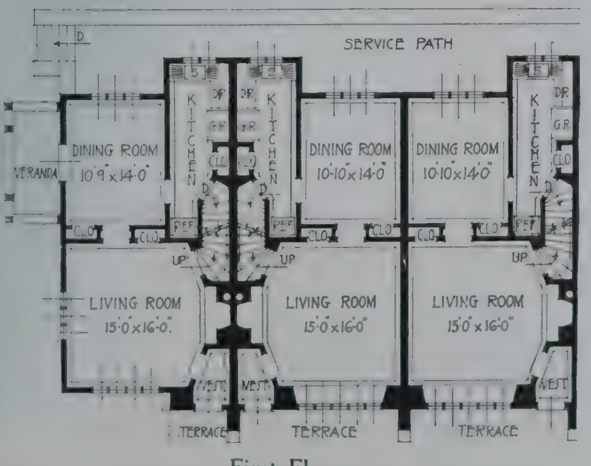
Second Floor



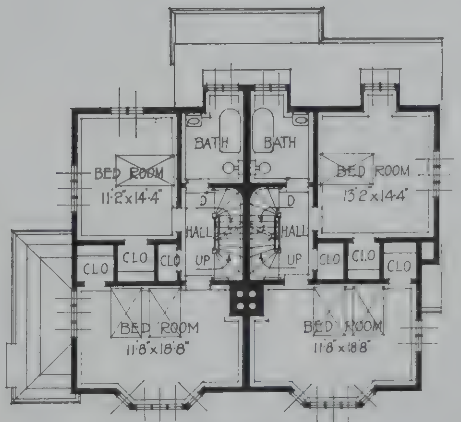
"OAK COURT TERRACE," BRONXVILLE, N. Y.
BATES & HOWE, ARCHITECTS



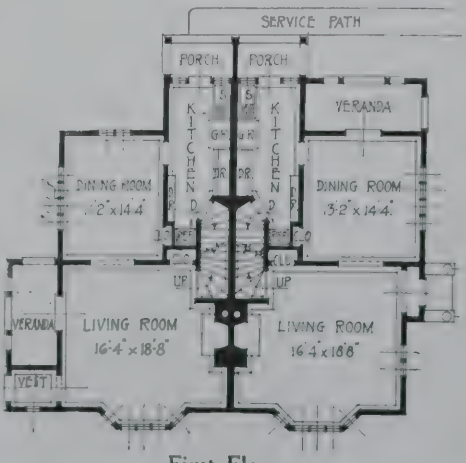
Second Floor



First Floor



Second Floor



First Floor

FORUM SPECIFICATION AND DATA SHEET — 49

Two-House and Three-House Groups, "Oak Court Terrace," Bronxville, N. Y.

Bates & Howe, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Stucco on wire lathing.

ROOF:
Slate.

WINDOWS:
Wood casements.

FLOORS:
Yellow pine.

HEATING:
Steam.

PLUMBING:
Wrought iron piping and enameled iron fixtures.

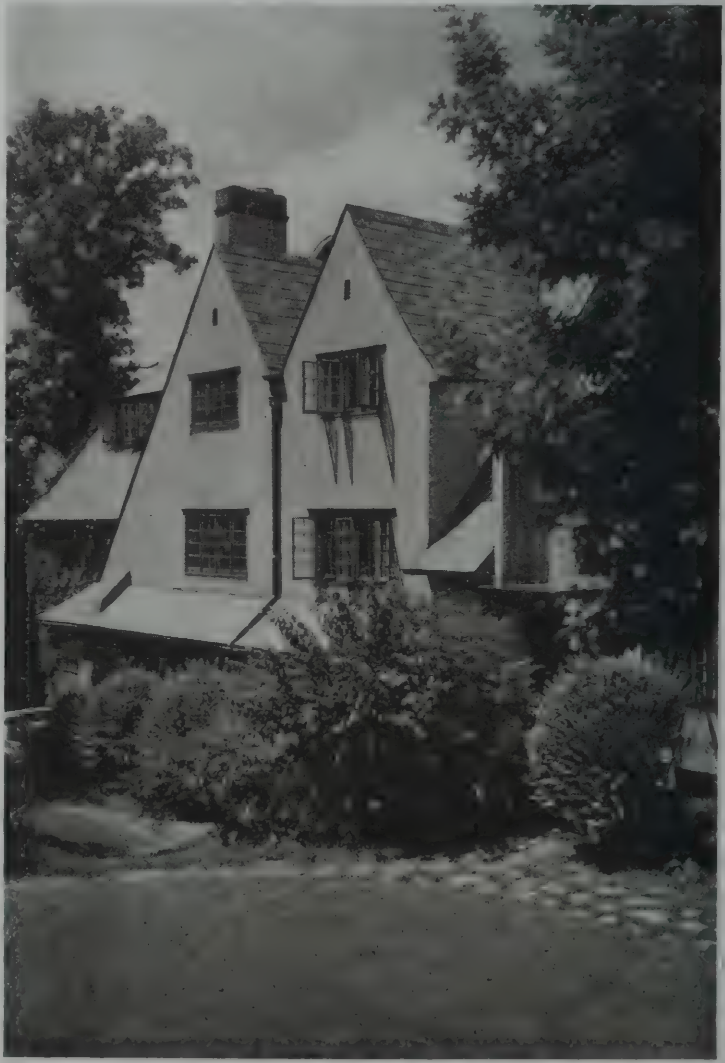
ELECTRICAL EQUIPMENT:
Lighting only. All cooking done by gas.

INTERIOR MILL WORK:
White wood.

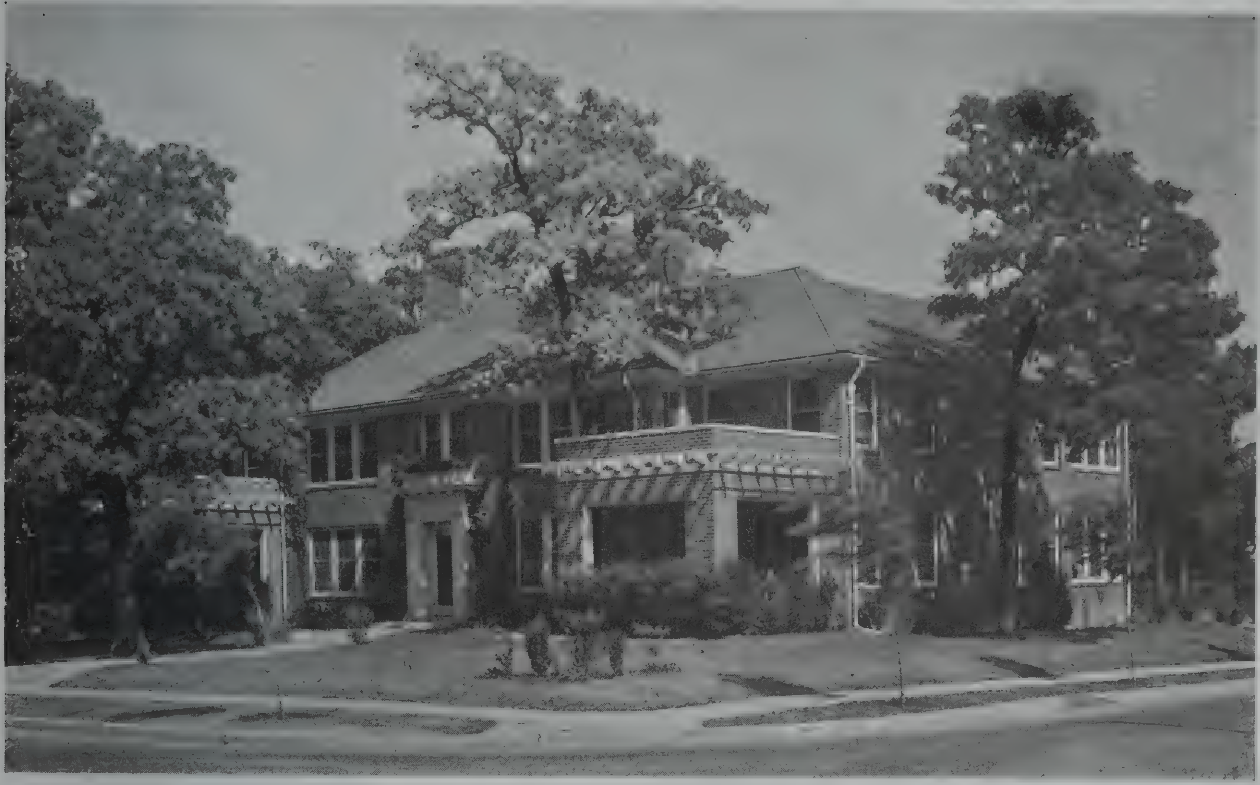
INTERIOR WALL FINISH:
Varies, according to taste of occupants.

THIS group of picturesque suburban houses, known as "Oak Court Terrace," comprises both two- and three-family units. Each house has three floors with individual staircase and separate entrance. The end houses in the three-family groups have separate verandas, which is true also of each house of the two-family groups. The plans are compact and convenient. The first floor of each house contains a living room, dining room and long, narrow combination pantry and kitchen. The second floor has two master bedrooms and bath with excellent closet space. Two additional bedrooms and a bath are located on the third floor under the sloping roofs.

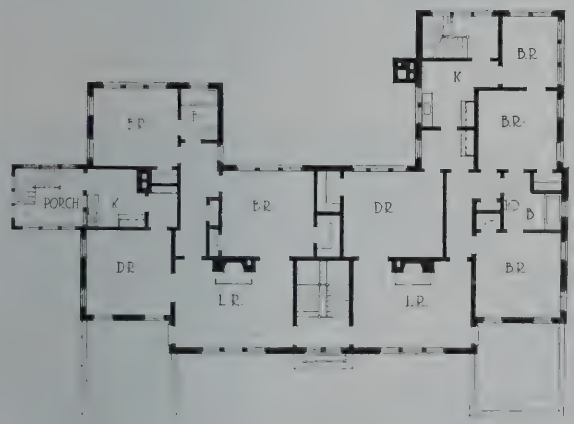
The popularity, as well as the advantages of two-, three- and four-house groups is obvious. Each family enjoys a great degree of privacy as well as home atmosphere, due to the individual exterior entrance, interior stairways in each house, and rooms on two or three floors instead of on but one floor, as is the case in most modern apartments not of the duplex variety. Even the latter style of apartment, so frequently found in many of the newer city apartment buildings, lacks the advantages of separate exterior entrances, verandas, and light on three sides. Although many buildings of this type provide an individual heating plant for each section of the building, or each house, a more common arrangement provides a single heating plant for the entire structure. This is true also of the gas or coal heater needed to provide the hot water.



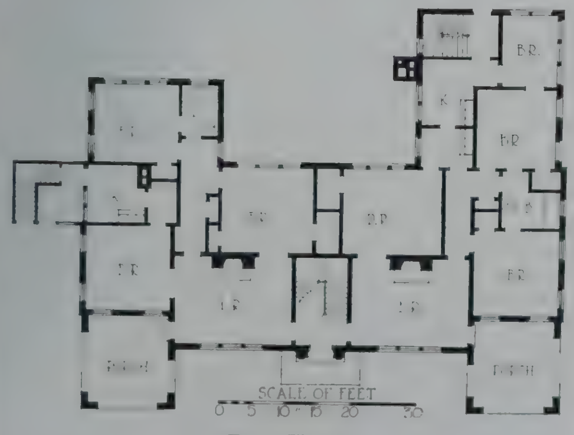
Twin Gables and Well Planned Roofs



FOUR-APARTMENT BUILDING, DALLAS, TEX.
DEWITT & LEMMON, ARCHITECTS



Second Floor



First Floor

IT is distinctly encouraging and reassuring to find good architecture and intelligent planning combined in a four-family apartment house recently completed at Dallas, Texas. Too frequently this type of house is designed as well as built by a contractor or builder. Architects of ability are unfortunately seldom employed to design buildings of this kind, so that most of the two-, three- and four-family houses so popular today in the middle West and the South have little to recommend them as examples of good architecture. Exceptions to the rule are not many, and examples of bad designing are numerous.

This building in Dallas might well serve as an example to be copied wherever cost and location permit. Built of red brick with limestone and wood trim, simple Colonial details have been used to enrich and emphasize the importance of the entrance door. The windows are well spaced and grouped, producing with the two spacious living porches a balanced design for the front of the building. The low pitched hip roof and attractive cornice still further add to the architectural character of the design. This building is an excellent example of a two-story structure containing four apartments under one roof. The plan of each half of the building, although differing somewhat from the other, shows a logical arrangement of living rooms, bedrooms and baths on one floor. The roof is sufficiently high to provide adequate air space over the second story, which ensures cool bedrooms, as well as adequate storage space for all the apartments.

The planning of the building has much to recom-

FORUM SPECIFICATION AND DATA SHEET — 50

Four-Family House, Dallas, Tex.; Dewitt & Lemmon, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR MATERIALS:
Brick veneer in range of five colors, with limestone trim.

ROOF:
Cedar shingles.

WINDOWS:
Wood, double-hung, weather stripped.

FLOORS:
Plain white oak.

HEATING:
Vapor steam.

ELECTRICAL EQUIPMENT:
Intercommunicating telephones, lighting and connections for cooking.

INTERIOR MILL WORK:
Yellow pine, painted.

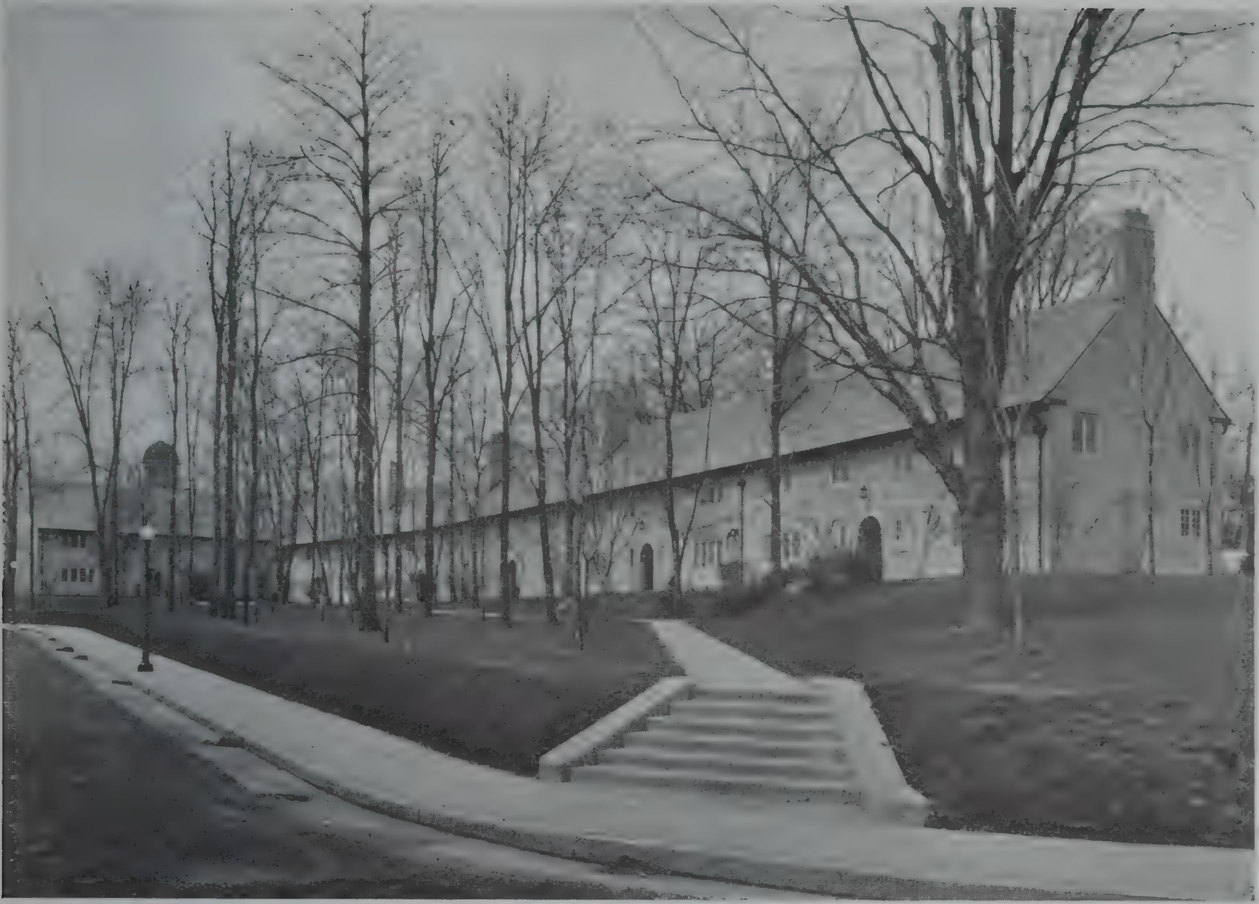
INTERIOR WALL FINISH:
Plaster, painted.

INTERIOR DECORATIVE TREATMENT:
Varied, according to taste of occupants.

mend it. One admirable detail is the arrangement which provides a main entrance wholly apart from the verandas or porches, which makes possible the use of the verandas with some degree of privacy, which is rarely if ever had when the veranda is at the entrance to the house. As one enters any one of the four separate apartments into which the structure is divided, its appearance is hospitable and inviting. The unusual area of the building makes possible an arrangement which is broad and generous. The rooms are of fair sizes and are well arranged, instead of being placed in rows and all opening upon a long, tunnel-like hall, the arrangement found in so many of the multi-family houses. Some of the bedrooms are so arranged that they have windows on two sides, which give cross-ventilation. The building has none of the character of a multi-family house. Placed as it is well back from the sidewalks and surrounded by its wide expanses of closely cropped lawns, its shrubbery and fine trees, it has, instead, the air of a luxurious individual house, situated in a fine residential neighborhood.

The Approach and Entrance

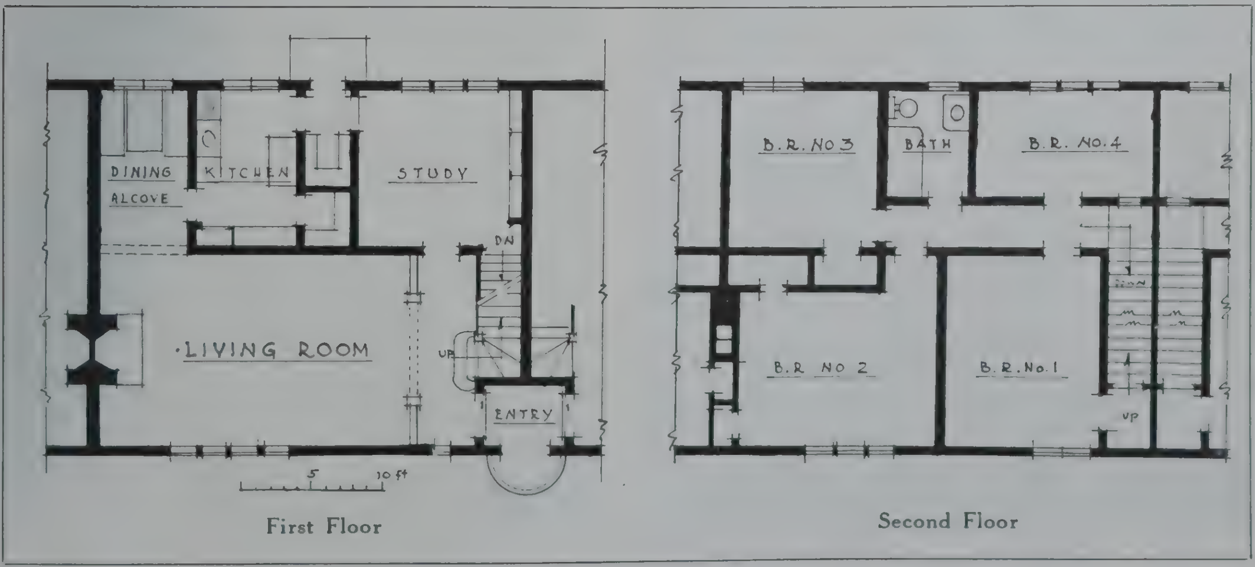
Porches Overlooking Lawns



FACULTY HOUSES FOR PRINCETON UNIVERSITY
PARK & MORGAN, ARCHITECTS

AMONG the recent additions to the University buildings at Princeton is a charming group of two-story houses for use of members of the faculty. Repeating in simple fashion the precedent already established by the extensive use of the English Collegiate style in the design of the more recently erected buildings, these several faculty homes, grouped under one continuous roof, show a charming simplicity in the adaptation of this type to the requirements of individual domestic buildings.

The group consists of 13 houses, ten in one and three in another row, extending at right angles, forming an elongated L in the general plan. The smooth stucco walls and the well proportioned and carefully spaced windows give an unusual sense of scale to the exterior elevation. The plain stucco



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 51

Faculty Houses for Princeton University; Park & Morgan, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Hollow tile; wood stud partitions and floor joists.

EXTERIOR MATERIALS:
Stucco.

ROOF:
Slate.

WINDOWS:
Wood casements.

FLOORS:
Comb grain yellow pine.

HEATING:
Vapor steam from central plant.

PLUMBING:
Wrought iron piping; enameled fixtures.

ELECTRICAL EQUIPMENT:
Lighting and bells.

INTERIOR MILL WORK:
Fir, stained.

INTERIOR WALL FINISH:
Sheet rock and wall paper.

DECORATIVE TREATMENT:
Wrought iron lanterns on the exterior, and tile floors and walls for vestibules.

NUMBER OF HOUSES:
13.

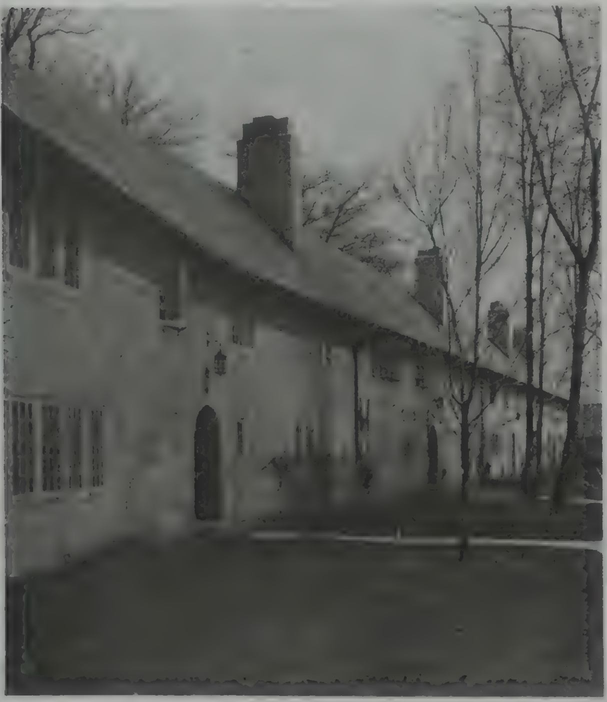
APPROXIMATE CUBIC FOOTAGE:
325,000.

COST PER CUBIC FOOT:
36 cents.

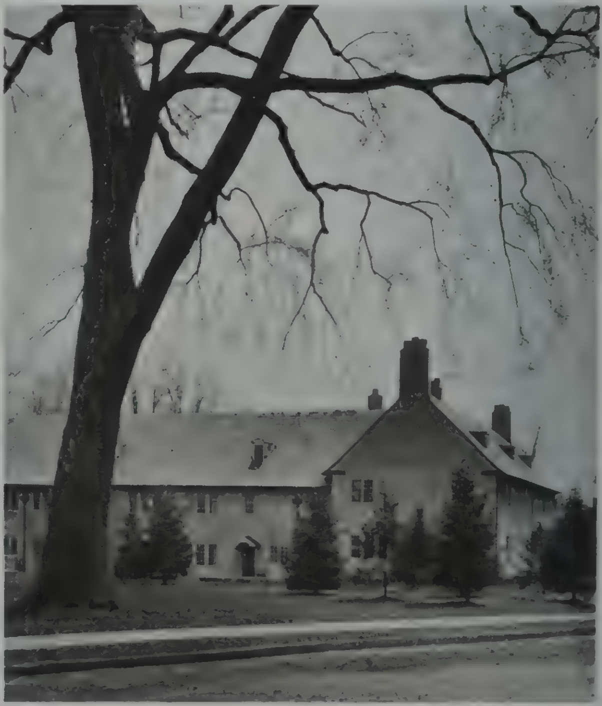
DATE OF COMPLETION:
September, 1922.

wall surfaces are successfully broken, not only by these carefully spaced windows, but also by archways leading into open entries which afford much needed notes of shadow at regular intervals. These several arched entry-ways, each of which serves as the entrance into two houses, are further distinguished by hanging lanterns above, and small casement windows at the sides. Heavy copper leaders with ornamental leader heads serve to still further relieve the severity of the long facade and tend to indicate the existence of the party walls which break up the length of the building into many two-house groups. The tall, stucco-covered chimneys, with chimney pots of random heights, also mark the several divisions of the group. The steep pitched, overhanging roof provides excellent air and storage space above the second floor, and the deep overhang of the eaves makes a pleasant line of shadow across the entire facade. Although the grade of the property on which this group is built falls away at one end, the houses themselves are kept at a uniform level by means of a wide continuous terrace.

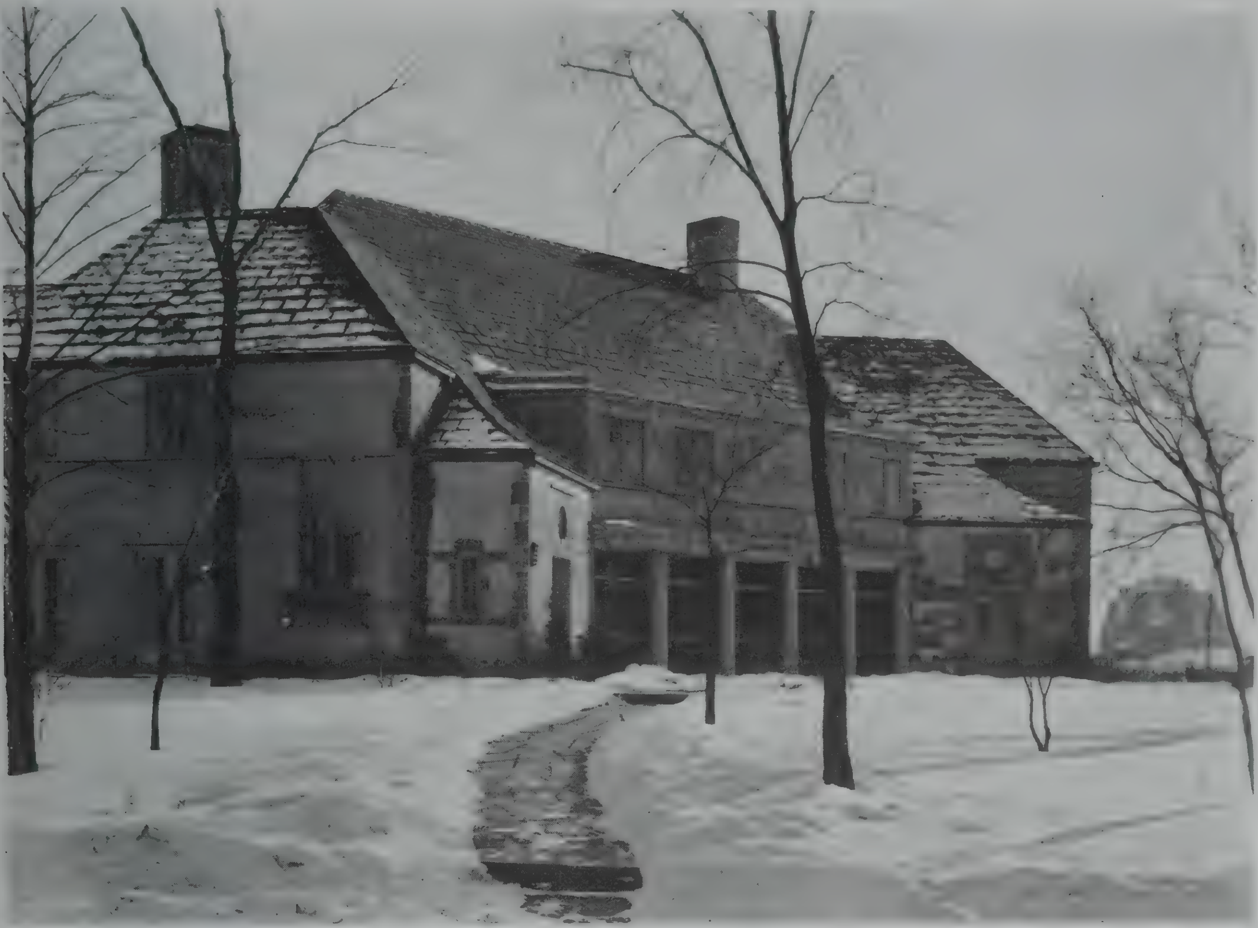
The beauty of the group is considerably increased by the skillful handling of its approaches. Instead of there being for each entrance a separate walk from the street, making many lines across the broad lawn, the whole group is served by one long walk, which extends through the length of the entire property.



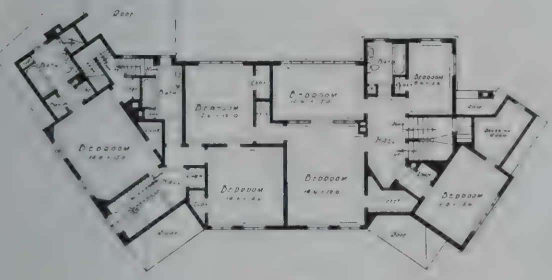
One View of the Faculty Houses



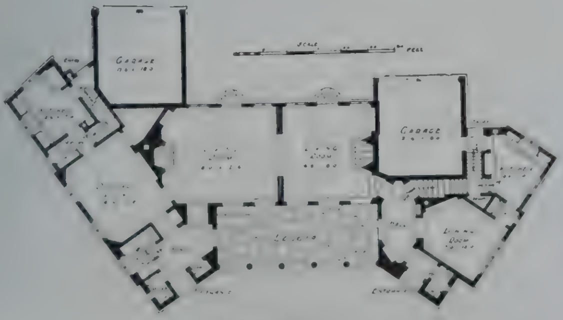
The Group Seen from the Other Side



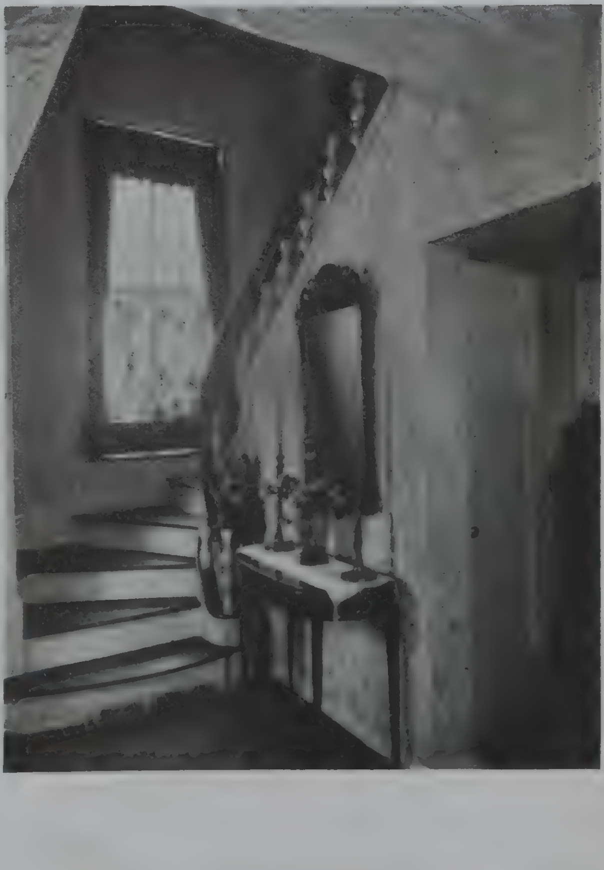
TWO-HOUSE GROUP FOR J. J. BOGGIS, ESQ., CLEVELAND
BLOODGOOD TUTTLE, ARCHITECT



Second Floor



First Floor



FORUM SPECIFICATION AND DATA SHEET — 52

Two-House Group for J. J. Boggis, Esq., Cleveland; Bloodgood Tuttle, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Hollow tile and wood frame.

EXTERIOR MATERIALS:
Cement on hollow tile, with variegated buff stone trim.

ROOF:
Graduated slate, in shades of brown, purple and green.

WINDOWS:
Wood casements, with leaded glass.

FLOORS:
Porches, terraces and walks, flagstone; service quarters, composition; elsewhere, oak and Georgia pine.

HEATING:
Vapor steam.

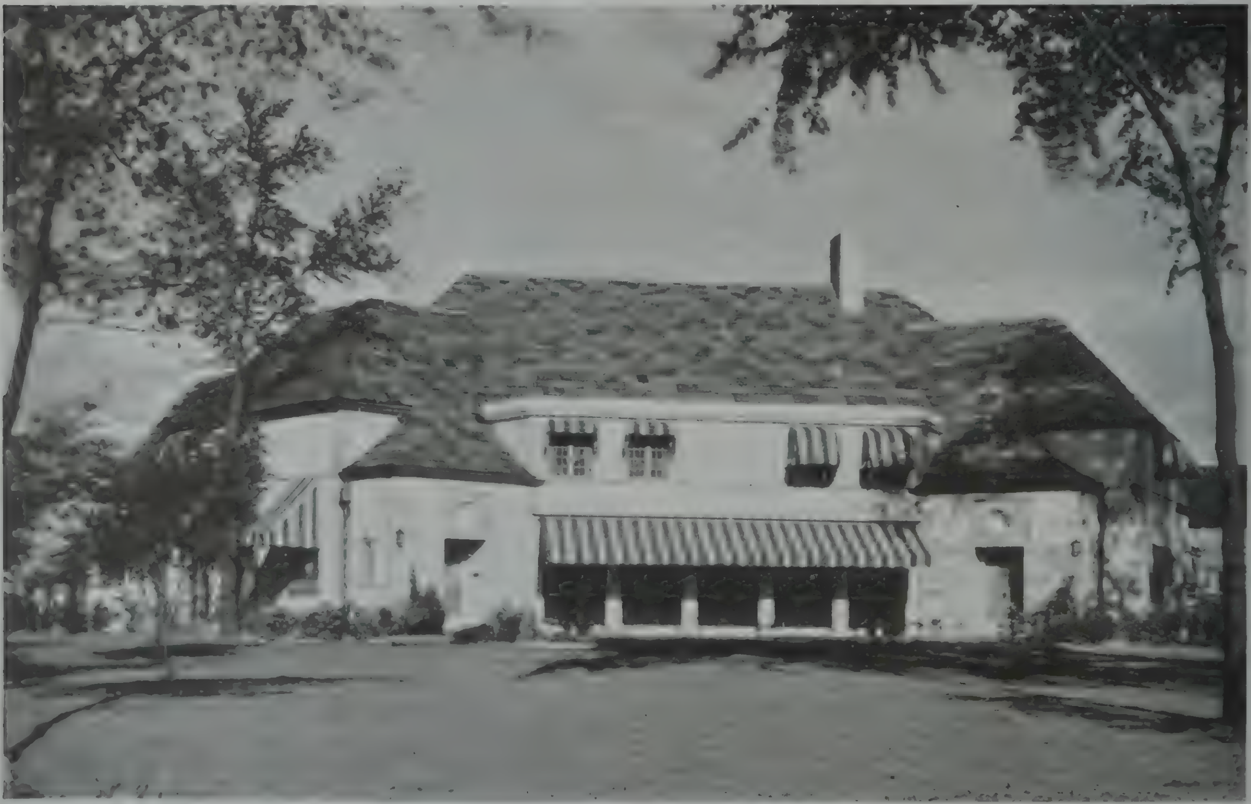
PLUMBING:
Wrought iron pipes and enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Bells and lighting.

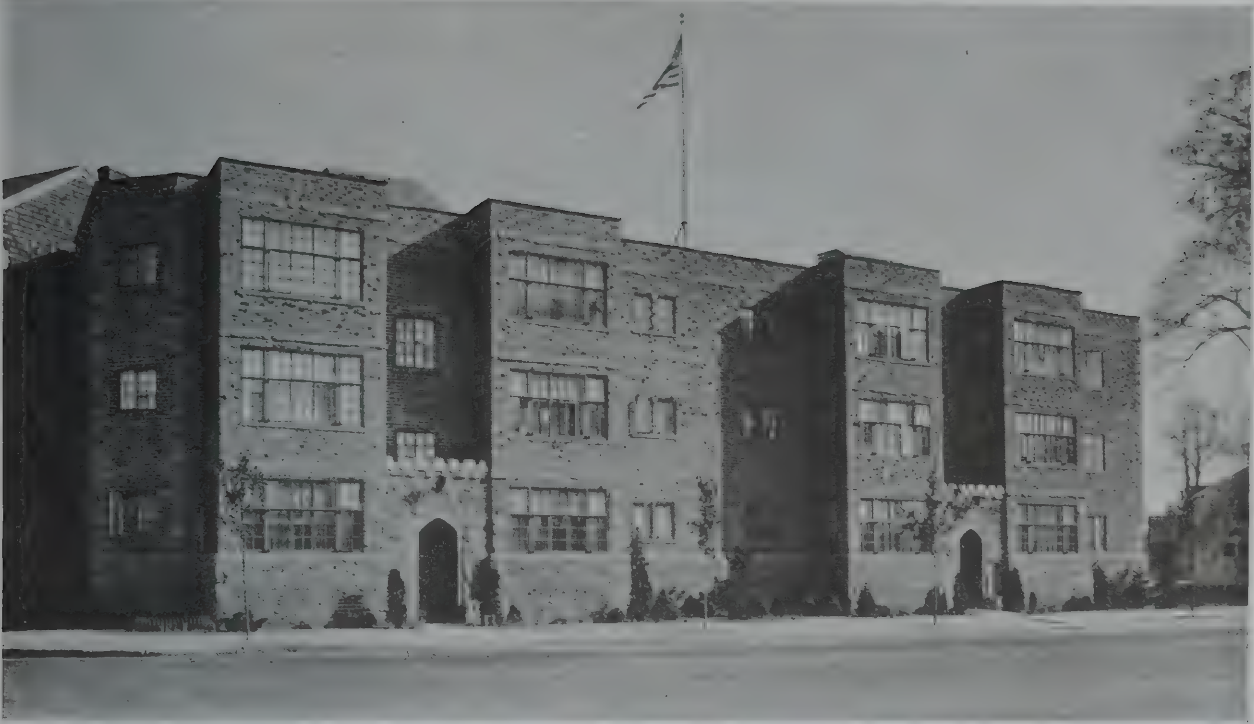
INTERIOR MILL WORK:
White pine, painted.

INTERIOR WALL FINISH:
Antique plaster in entrance halls and living rooms; hard finished plaster, paneled with wood strips, in dining room; bedrooms hard finished plaster, painted and glazed.

ORIGINAL, not only in exterior design but also in plan, this double house recently completed in Cleveland has many interesting features. It shows a central building with high hip roof balanced by two wings. Its unusual plan, which is undoubtedly due to the shape of the lot, gives an opportunity for a very picturesque and unique design for the exterior. Although not at all evident from without, the two houses here included under one roof are completely separate, except in the basement, and on the first floor, where large sliding doors connect the living rooms of the two houses. There is also a connecting entry, joining the houses at the center of the second floor. The absence of a third floor and the omission of dormer windows add much to the effectiveness of the long, sloping roof lines. In arrangement, the plans of the two houses are different and most ingeniously worked out, so that in spite of the angle of the wings, most of the rooms are practically rectangular or balanced in shape.



The Group as It Appears from the Street

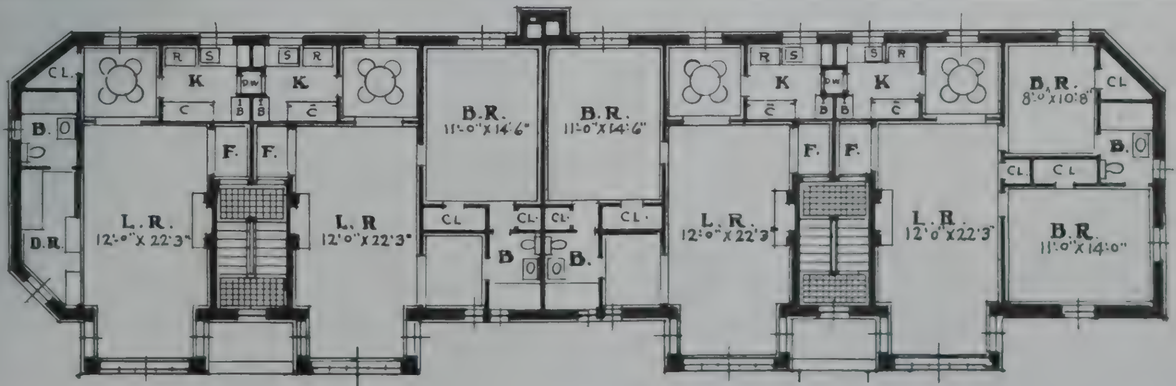


APARTMENT HOUSE AT LARCHMONT, N. Y.
E. D. PARMELEE, ARCHITECT

IT is sometimes difficult at first glance to discern the qualities of a new type of building without studying the steps by which the final result has been achieved. The problems of the small dwelling and the small apartment house have been solved, and these buildings have been given their present form after a very careful elimination of unnecessary space. The elimination of unnecessary areas which has taken place in this type of planning is chiefly that of the circulation spaces which were once deemed essential. In apartments the reduction of waste space can be carried even further than in houses. Here the nucleus of the plan is the living room, and from it may open most of the other rooms.

The apartment house which is illustrated here is an excellent example of economical planning. Each of the living rooms is of adequate size, and its fireplace and bay window give it cheer. The little dining alcoves are a most desirable detail and connect directly with the kitchens. The bedrooms and dressing rooms, as the case may be, open from the living rooms. The plot permits of a plan which allows three different types of apartments. One has no real bedroom, but has a dressing room with folding beds; another has one bedroom, bath and alcove, while a third has two bedrooms, both opening from its living room. In all cases the living rooms are the same size, with the fireplaces in their long walls and their bay windows at the ends.

The design of the exterior suggests the economy of the plan in its reduction of the elements to the absolute minimum. Texture of materials is relied upon for effect. No moulded courses are used, brick and stone roughly set giving a homelike quality to the mass of building. The towering square bays which mark the living rooms suggest the open fenes-



A Typical Floor

FORUM SPECIFICATION AND DATA SHEET — 53

Apartment House at Larchmont, N. Y.; E. D. Parmelee, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and tile.

EXTERIOR MATERIALS:
Brick and stone.

ROOF:
Composition.

WINDOWS:
Steel casements.

FLOORS:
Oak.

HEATING:
Vacuum steam; oil burner.

PLUMBING:
Built-in tubs; pedestal basins.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine.

INTERIOR WALL FINISH:
Rough plaster.

NUMBER OF APARTMENTS:
12.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
120,000.

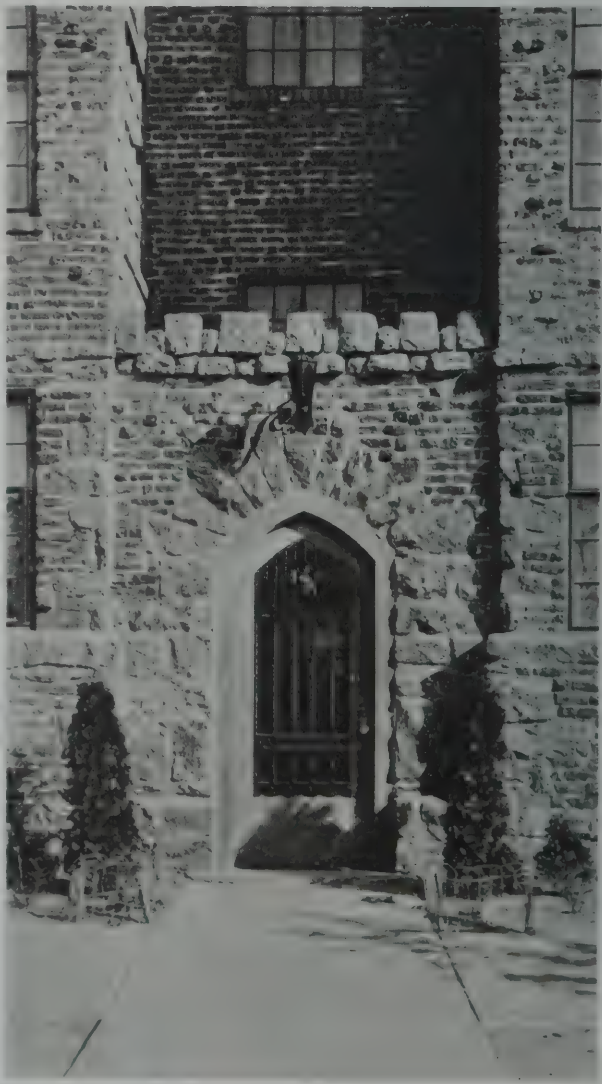
COST PER CUBIC FOOT:
52 cents.

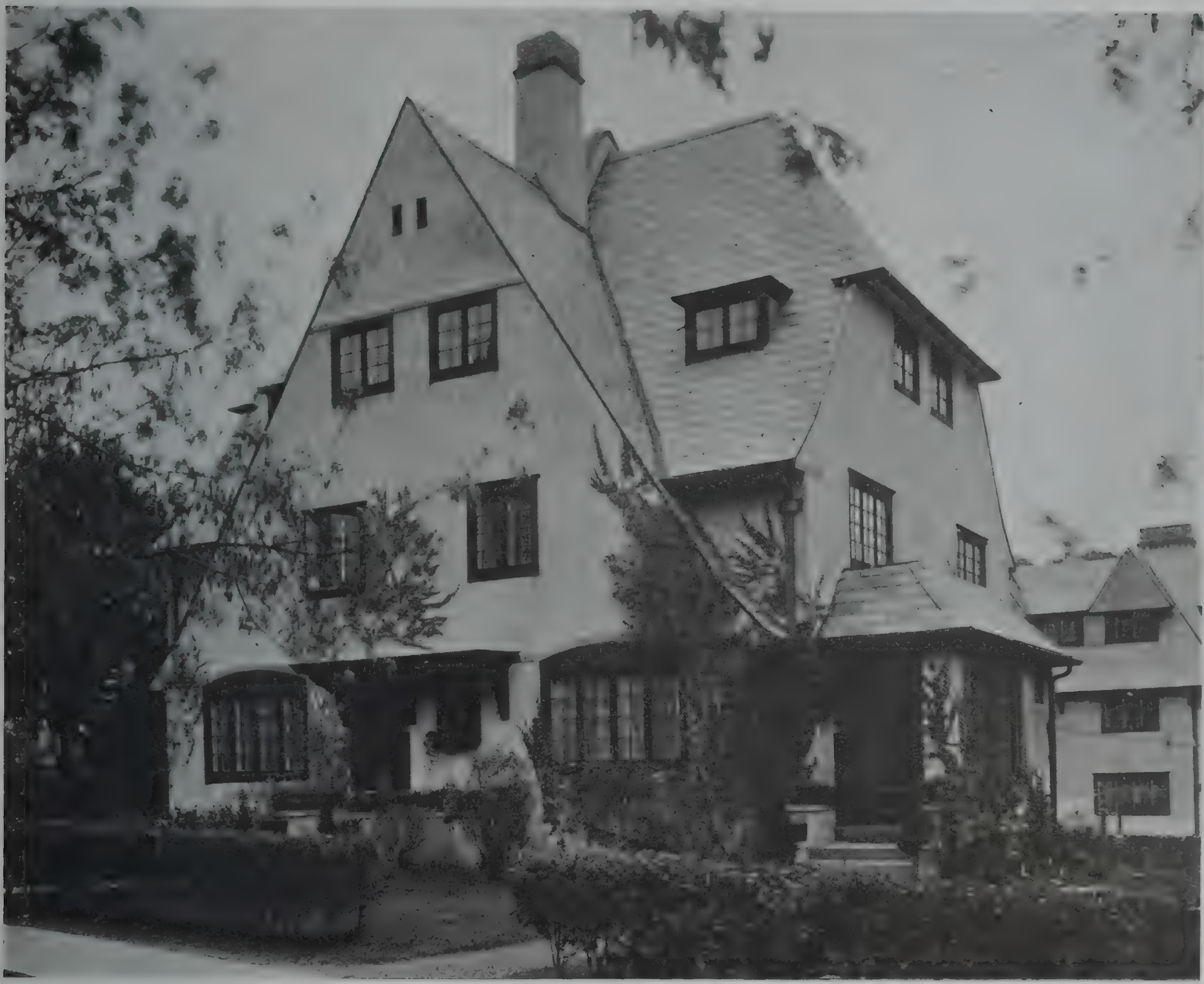
DATE OF COMPLETION:
September, 1924.

tration of the great houses of the Elizabethan era.

A lesson may well be learned from this unassuming apartment building, a lesson which may be applied to more pretentious and more costly work. There ~~is a single plan~~, close built and with not an inch of waste space. There is, in elevation, as simple and unaffected an expression of this plan as could possibly be had. This simplicity of plan and frankness of elimination are a natural expression of the economy which has given the keynote to the building. In apartments of this type there is a legitimate place for the many labor-saving devices which simplify the cares of the small household. In the smaller of these apartments folding beds attached to doors convert small dressing rooms into adequate bedrooms. Automatic refrigeration, electrical cooking and washing appliances make feasible and convenient the small kitchen spaces. In connection with these modest apartments the lack of space may be more than made up for by the convenience and simplicity of the housekeeping arrangements. The little kitchenettes are planned with all the economy of area which one would expect to find in the kitchen of a dining car, and yet no detail has been overlooked.

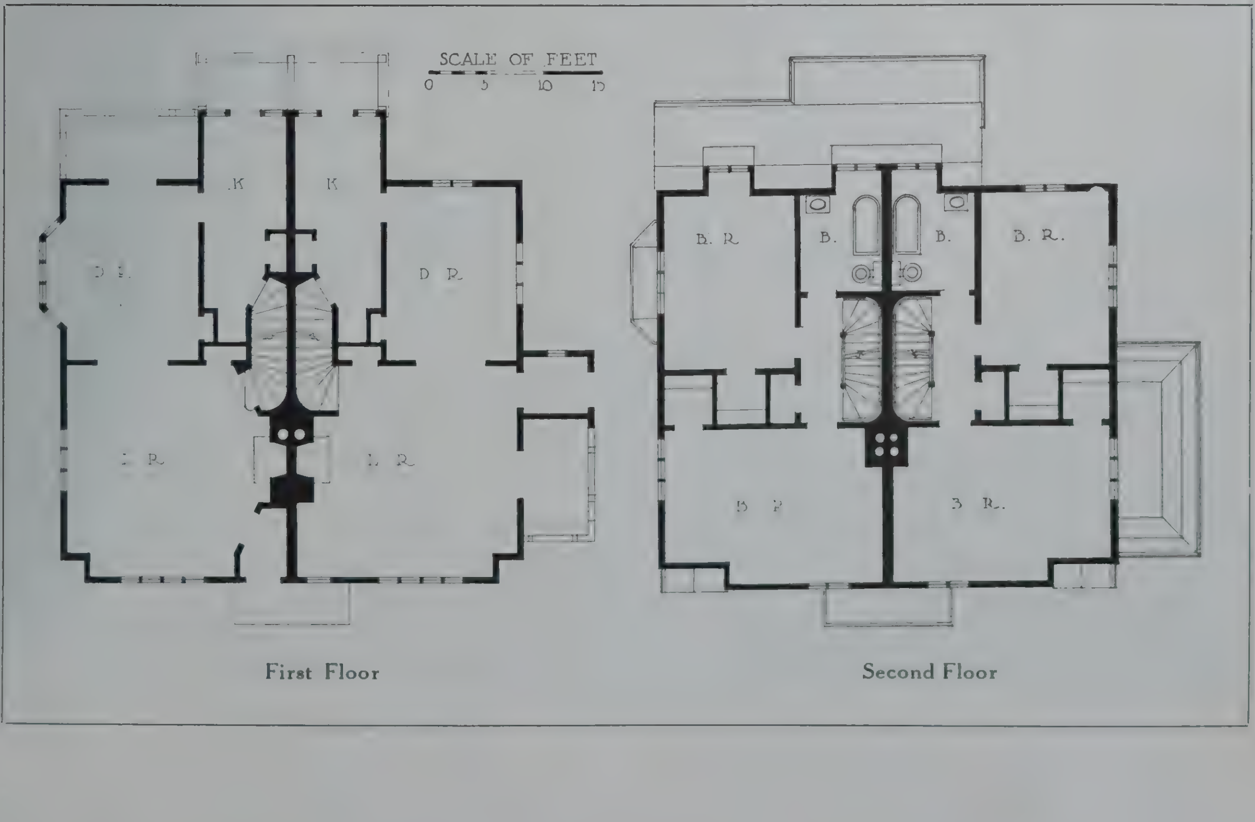
The same economy which has guided the planning of the individual apartments with absolutely no waste room has planned the public hallways and stairs. Upon each floor two apartments open from the landing upon which the stairs turn. Its suburban location gives the building unusual advantages in the way of light, air and sunshine, and the architect has been careful to place windows in such ways that each apartment receives the benefit of cross-ventilation. This building with its tiny apartments, which, tiny as they are, are intended for housekeeping, suggests the structures which are growing up in college and university towns, notably in Cambridge


One of the Two Entrances



TWO-HOUSE GROUP AT BRONXVILLE, N. Y.

BATES & HOWE, ARCHITECTS



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 54

Two-House Group, Bronxville, N. Y.; Bates & Howe, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Stucco on metal lath.

ROOF:
Slate.

WINDOWS:
Wood casements.

FLOORS:
Yellow pine in some rooms; oak in others.

HEATING:
Steam.

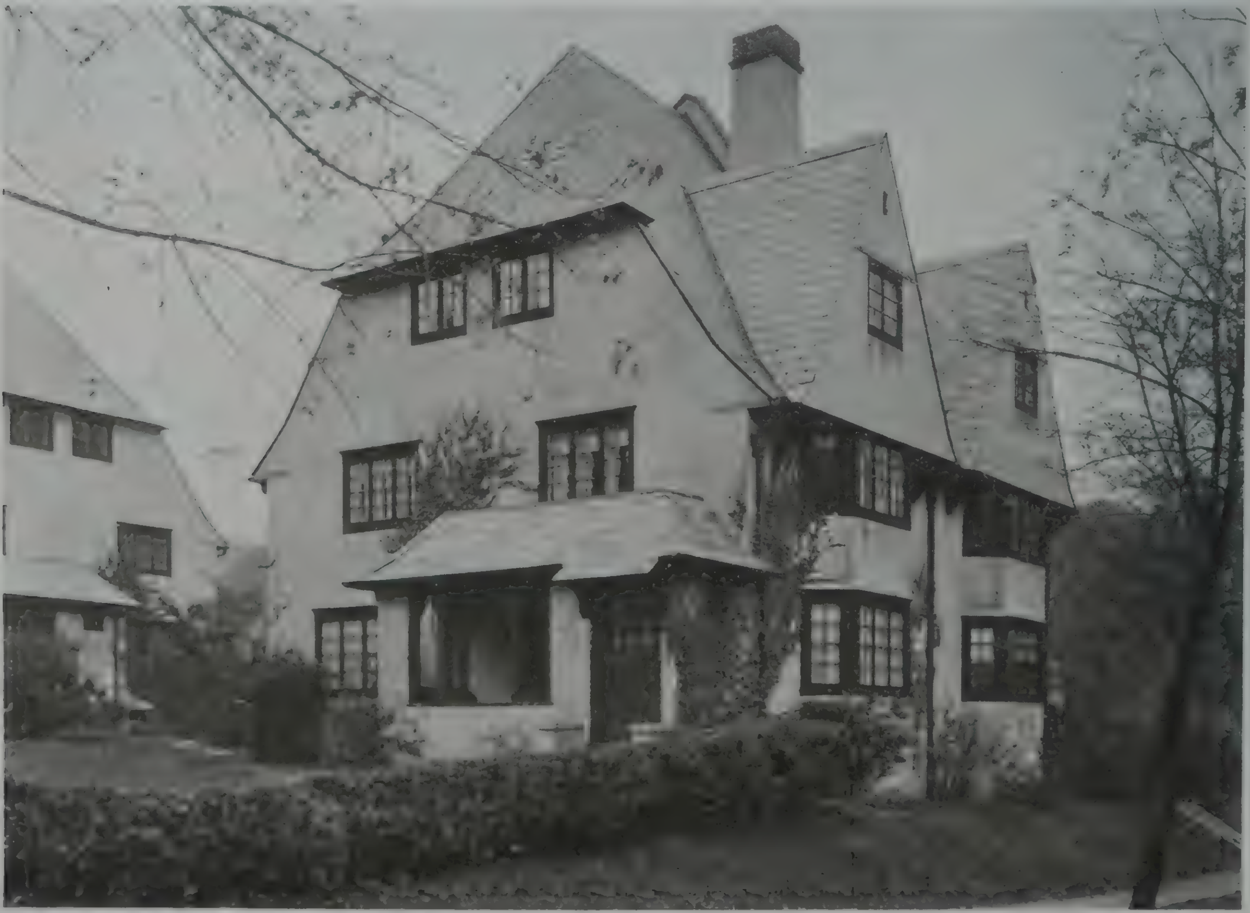
PLUMBING:
Wrought iron pipes.

ELECTRICAL EQUIPMENT:
Lighting.

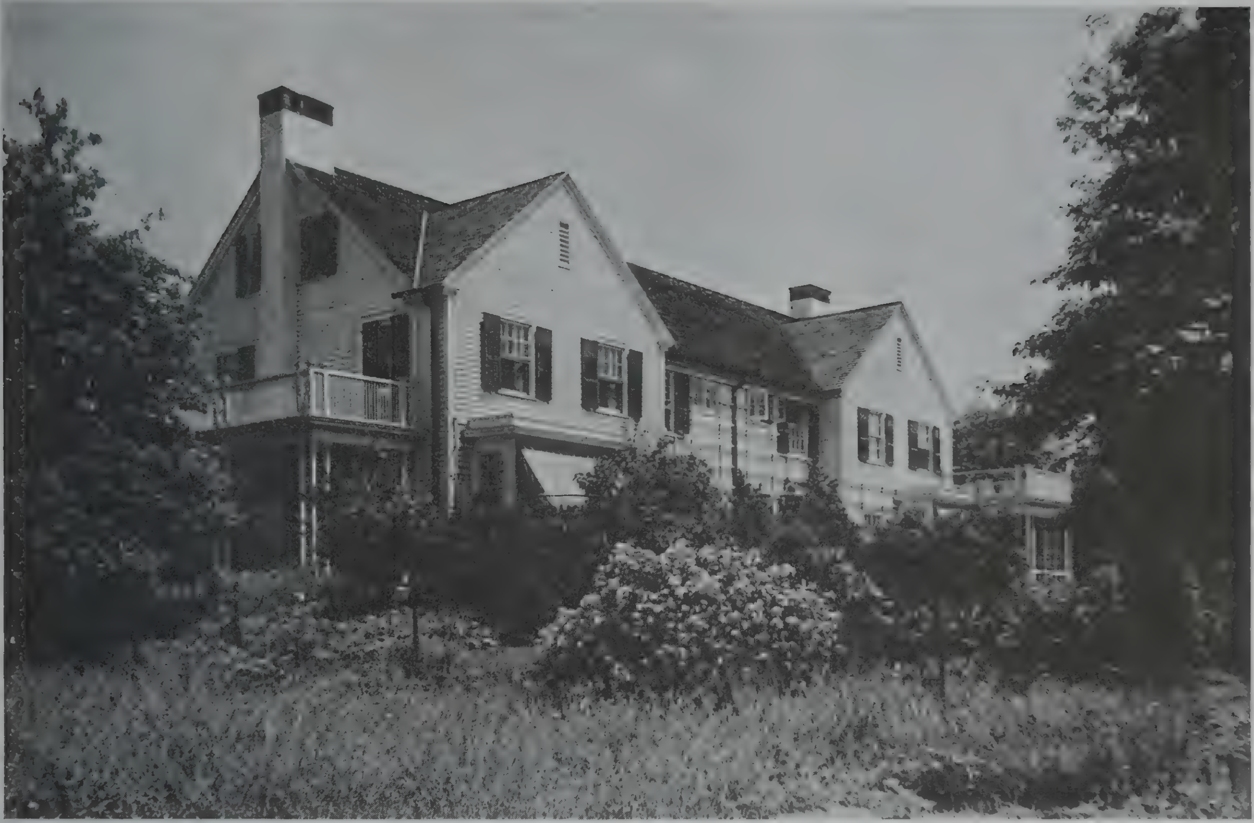
INTERIOR MILL WORK:
White wood trim.

INTERIOR WALL FINISH:
Plaster, painted.

HIGH costs of building material necessitate the utmost economy in its use, and structures of every kind are being so planned that every available cubic inch is turned to good account. This economy of material as well as of area has been practiced in designing this charming group of two dwellings at Bronxville, a suburb of New York noted for the excellent taste in which many of its buildings are designed. Exterior walls are of rough cast stucco to which the stained wood trim affords a pleasing contrast, and the roofs which are so striking a detail of the houses are of slate. The floor plans show that the strictest economy has been used in arranging the interior, but nevertheless the houses, as one enters, suggest breadth and space, and are among the most attractive in the village.



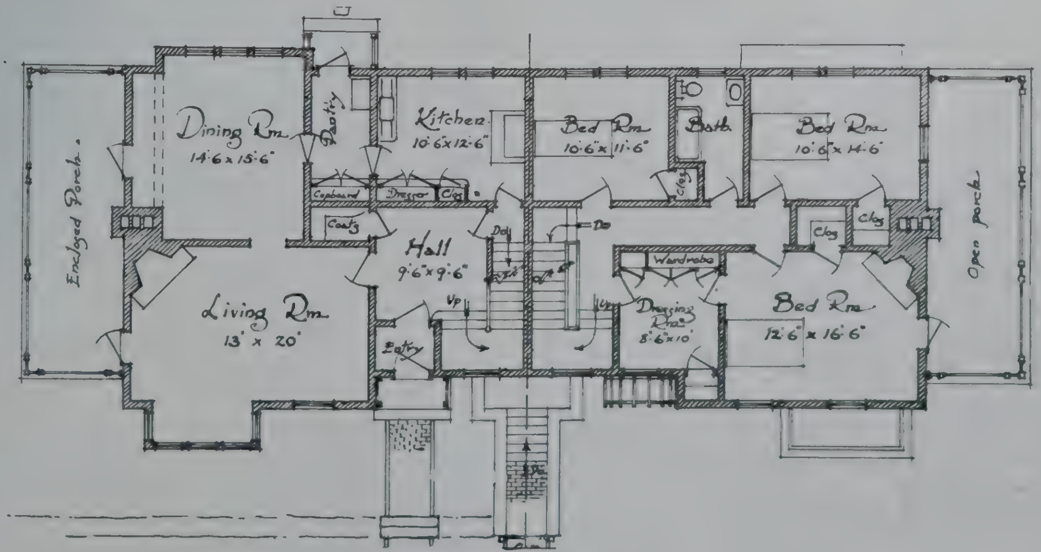
An Exterior of Excellent Composition and Graceful Lines



DOUBLE HOUSE, FLUSHING, N. Y.
ROGER H. BULLARD, ARCHITECT

THE simplest type of late Colonial architecture, developed in white painted siding and green painted blinds, is used in this double house. The charm of this simple and perfectly balanced building lies in the fact that it shows none of the hallmarks of the typical two-family house. At first glance no one would imagine that it is not a single, spacious country house. The use of balancing gables and porches is so characteristic of modern country house design that use of these elements in this instance in no way suggests the two-family character of the building. It is heartily to be wished that more two-family houses could be as successfully and as conscientiously studied as is this house.

The plan shows exact duplication in reversed layout for each half of the house. Separate entrance



First and Second Floors

FORUM SPECIFICATION AND DATA SHEET — 55

Double House, Flushing, N. Y.; Roger H. Bullard, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR MATERIALS:
Narrow siding or clapboards.

ROOF:
Red cedar shingles.

WINDOWS:
Wood, double-hung.

FLOORS:
Comb grain Georgia pine.

HEATING:
Hot water system.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting and bells.

INTERIOR MILL WORK:
White wood, painted.

INTERIOR WALL FINISH:
Hard plaster; painted in some rooms, papered in others.

DECORATIVE TREATMENT:
Simple Colonial in character.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
64,512.

COST PER CUBIC FOOT:
16 cents.

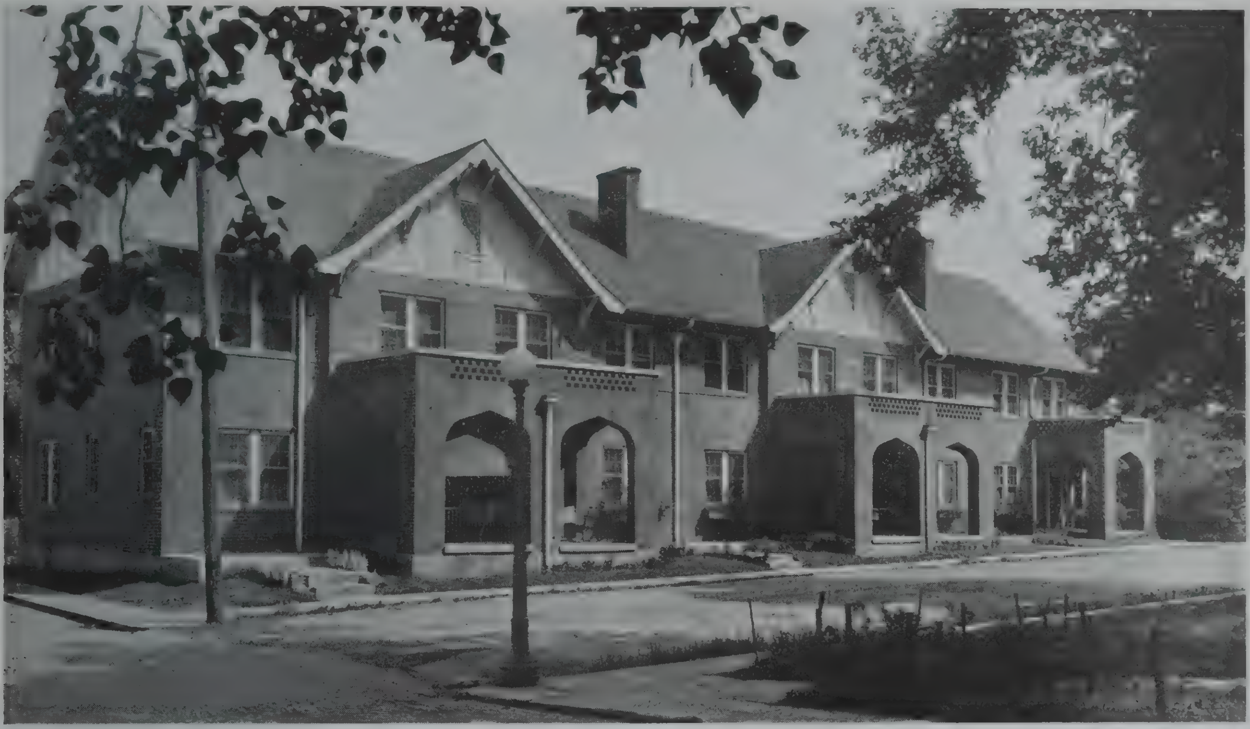
YEAR OF COMPLETION:
1914.

doors, vestibules, halls and stairways give absolute privacy and home atmosphere to each. Well proportioned living rooms and dining rooms, and spacious porches, which can be enclosed in winter, still further add to the domestic character of the building. The bay window in each living room is another attractive feature, as well as the corner fireplaces in this room and the bedroom immediately above. Chimneys suitably strengthen the gable ends of the building and add, with their white painted brick, to the Colonial character of the structure. In each of the gables which break the long, horizontal lines of the house a small louver window provides adequate ventilation. To further emphasize the domestic and homelike quality, attractive shrubs and flowering plants as well as beds of flowers have been planted across the front of the building. Brick paths lead to the entrance porches and the outside steps which give access to the basement extending under the entire structure. A single heating plant serves both dwellings, and a single gas heater provides hot water.

The windows are well proportioned and carefully spaced, having eight panes of glass in each sash. The details of the entrance doors, bay windows, gable and eaves cornices, as well as the two open porches, show unusual care and skill in their design, adding much to the architectural charm.

One small but important detail in the planning of these houses is of interest,—the way in which the kitchen of each house is separated from the other rooms of the lower floor. In most houses of small or medium size cooking odors from the kitchens are likely to escape, but here the placing of a pantry between kitchen and dining room and a small entry between kitchen and front hall (really the approach to the cellar) affords full protection.

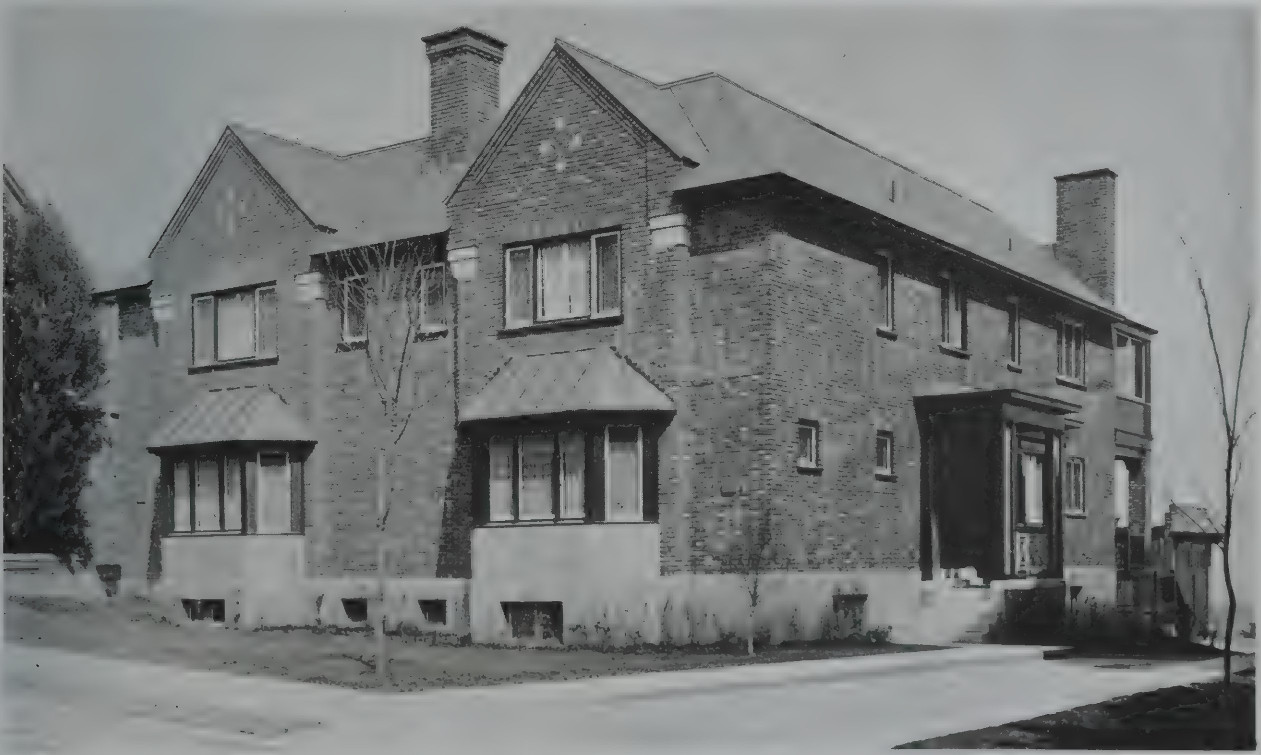
A Living Room Fireplace



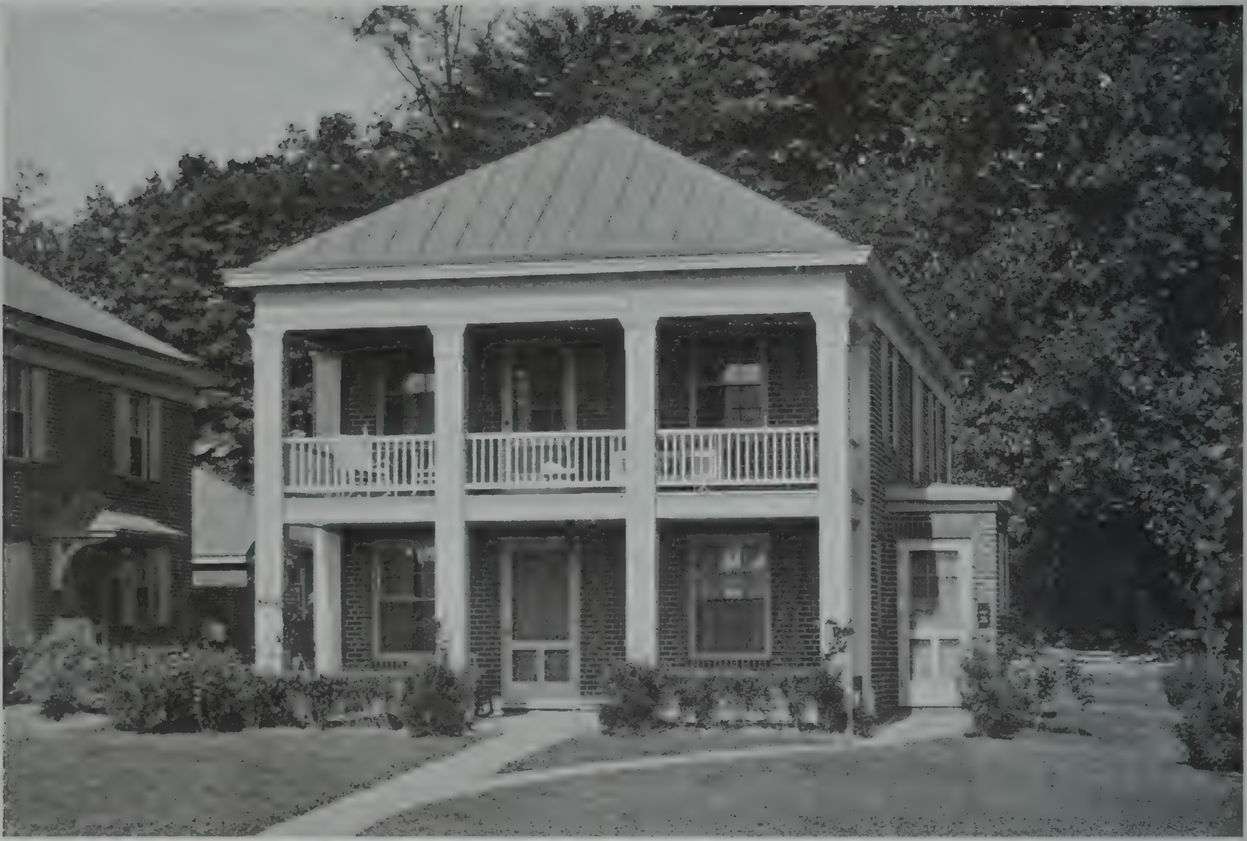
A Five-House Group, Bristol, Tenn.
C. B. Kearfott, Architect

AT Bristol, Tenn., a very simple and straightforward design has been employed in a five-house group. The living porches of the first two groups of two houses each have been combined as one porch with two openings, giving an effective architectural treatment and balancing the gable of the roof above. Carried out in red brick with a very simple type of half-timber and stucco treatment for the gable ends of the building as well as for the two roof gables, a pleasing and unusual effect has been achieved.

In Montreal another successful example of the double house has recently been completed, in which cement chimneys have been combined with red brick walls. At the rear two-story porches are located.



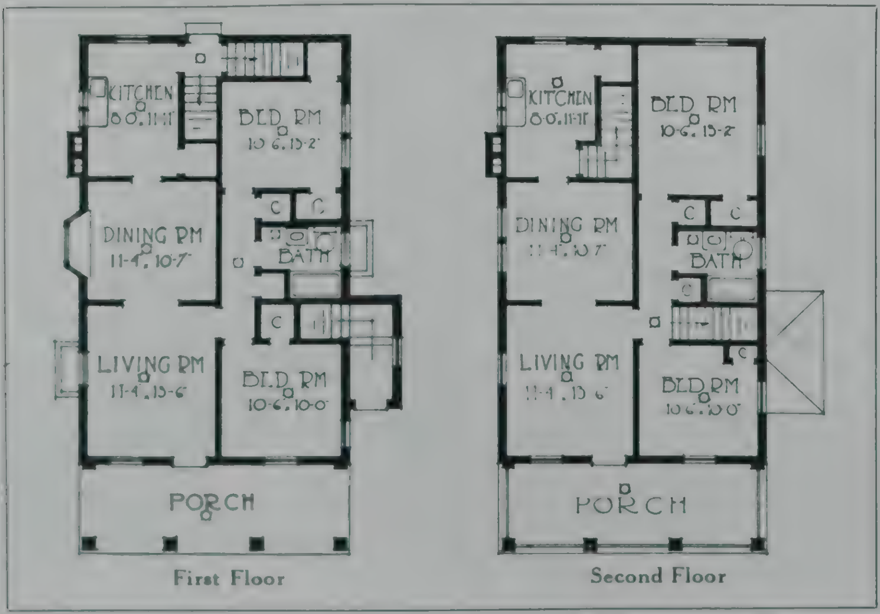
Two-House Group in Montreal
Philip J. Turner, Architect



A TWO-FAMILY HOUSE AT MARIEMONT, O.
CHARLES F. CELLARIUS, ARCHITECT

AMONG the many interesting and successful examples of multi-family houses recently erected in a new suburban development at Mariemont, a successful solution of the two-family problem is found. This solution is somewhat different from the type usually found in recent buildings of this kind. Instead of each family's occupying half the building with rooms on two floors, this excellent house at Mariemont provides for one family on each floor, the advantage of this plan lying in the fact that the tenants of the upper floor enjoy the use of an individual outside entrance and private stairway, as well as a spacious front porch. Each plan shows a compact and convenient arrangement of living room, dining room, kitchen and two bedrooms and bath, rooms of good sizes and well planned.

The planning of a building of this character, where each of the families occupying the house must be given a separate porch, involves a problem in design which is not often solved as successfully as has been done in this instance. Here the extremely simple type of two-story veranda favored by the architects of the "Greek Revival" period has been adopted, heavy pillars extending from the ground to the cornice of the roof which is extended over the veranda. The fine simplicity of the pillars, cornice, balustrade, and in fact of all the exterior woodwork would give distinction to almost any building.



First Floor

Second Floor

Interior Finish and Fixtures of Apartment Houses

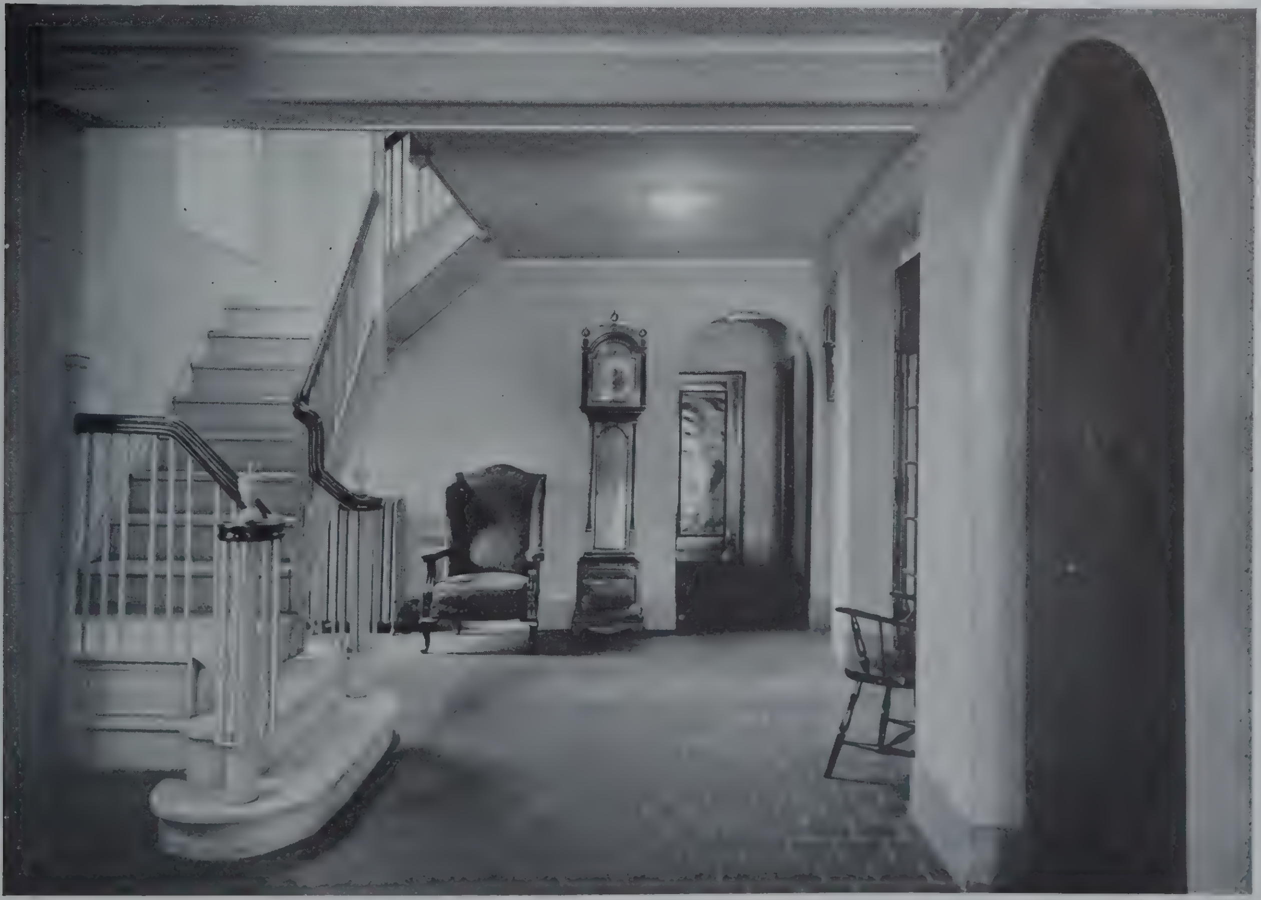
By LEIGH FRENCH, JR., *Architect, New York*

INTEREST in the beautifying of the home has become today so widespread as to constitute practically a new profession. Never in history has there been a time when everyone with any pretension to culture or gentle breeding instinctively sought pleasantly beautiful surroundings for everyday life to the extent that is done today. The group of people interested in this subject is so large and so important as to form a cult which wields a wide economic and artistic influence, which is valuable.

A very large proportion of this group dwells in apartments, large or small, in cities and suburbs. The motive for the interior architectural finishing and furnishing of these apartments is the desire to create as far as possible the atmosphere of an individual house,—a desire very often impossible of fulfillment. After all, the home is the one place in many where one is able to be selfish about one's ideas. It holds such a vital position in most of our lives that we insist on its aspect being as attractive and pleasing as is possible. It is here that we relax, play, read and live. So why shouldn't it be just as we desire it to be? This is exactly what the architect is making possible. The apartment today, especially the large apartment, is a real home,—a goal which is reached only through the combination of beauty and individuality to the greatest extent which is humanly possible in such a huge proposition.

Houses, until within recent memory, were likely to be entities, and each somewhat different from the others. Either the house was built to suit the requirements of a particular family, or if not it at least possessed sufficient individuality of its own to distinguish it from its neighbors and gradually to harmonize with the tastes and ways of life of its tenants. It is just here that we touch the reason for the apartment's difficulty as a subject for homelike treatment. For reasons of economy the apartment building is likely to repeat, again and again, the same formulæ of planning and of decoration. Except in the highest classes of modern apartment buildings there is little variety of arrangement or enrichment. Standardization thus lays a heavy hand upon the most intimate of man's possessions,—his home, the one place in the world which is his own.

All of this is well realized by architects today, and an effort is being made very generally to introduce as much variety into individual apartments as is pos-



Entrance Hall at 123 Waverley Place, New York
Butler & Rodman, Architects

Stair Hall at 601 Beacon Street, Boston
Butler & Corse, Architects

Stair Hall at 180 East 75th Street, New York
Harry M. Clawson, Architect

sible. In planning there are many restrictions which make it impossible to achieve great variety. In the course of apartment house development a standard has been unconsciously created relative to the interior finish and fixtures of the building, with the aim of attaining a combination of the greatest amount of beauty with a maximum degree of utility at a minimum of cost. Already there is a standard which severely censures building design and interior treatment if they do not fulfill the general stipulation set by it. A certain amount of freedom is conceded within the units of the plan, such as the treatment within each apartment and the interior design of the building itself; but there are sharp stipulations for the designs of the hallway, entrance, the lobby itself, the general floor plan (the arrangement of each floor must follow that of the floor below), and the choice of interior building materials, and there are other limitations which prevent an entirely free exercise of the architect's individuality.

The real opportunity for individualizing the apartment house and its apartments is in the variety of finishes and methods of decoration which can be employed and the labor-saving or time-saving devices which may be installed. The modern apartment presents many more opportunities for decorative and utilitarian treatment than did its predecessor of the last generation. Then the long, narrow hallway was as impossible of pleasant treatment as a bowling alley, and the rooms opening from it, often poorly lighted, held out little more hope. Either there were no features such as alcoves, niches, spacious lobbies and vistas through rooms or suites, or else there were so many of all of them as to make life in them hideous. The exteriors expressed the dullness of the plan and indicated its ugliness.

Modern apartment planning has become a very specialized art. The exterior is usually simplicity itself, with little decoration except that centered about the entrance and the cornice at the top. The entrance lobby is more or less handsomely finished and furnished, giving an idea of the type of apartments which it serves. The apartments themselves are arranged to give the maximum of spaciousness and light, with rooms proportioned in size to their use, and susceptible of simple or elaborate finish. Their arrangement falls broadly into two groups,—those on a single level, and those occupying two or more floors, with connecting staircases. Of these types there are all varieties, from the smallest kitchenette suite to the large "duplex," occupying practically all of the two floors of a huge building. In the smaller types, the chief feature is that of space saving by means of combination uses of rooms. There is the kitchen-dining alcove arrangement, and the living room with a concealed bed. Beds of this type are being made which, folded up inside closet doors, are swung out at night, and thus only during the time that they are in use do they occupy the floor space which is valuable in these smaller apartments The potentialities of this scheme are marvelous, since any room at all can be converted into a bedroom, and such beds are of great value to families living in small apartments, in quarters in which only

Stair Hall, Latham Apartments, Columbus, O.
Miller & Reeves, Architects

Stair Hall at 601 Beacon Street, Boston
Butler & Corse, Architects

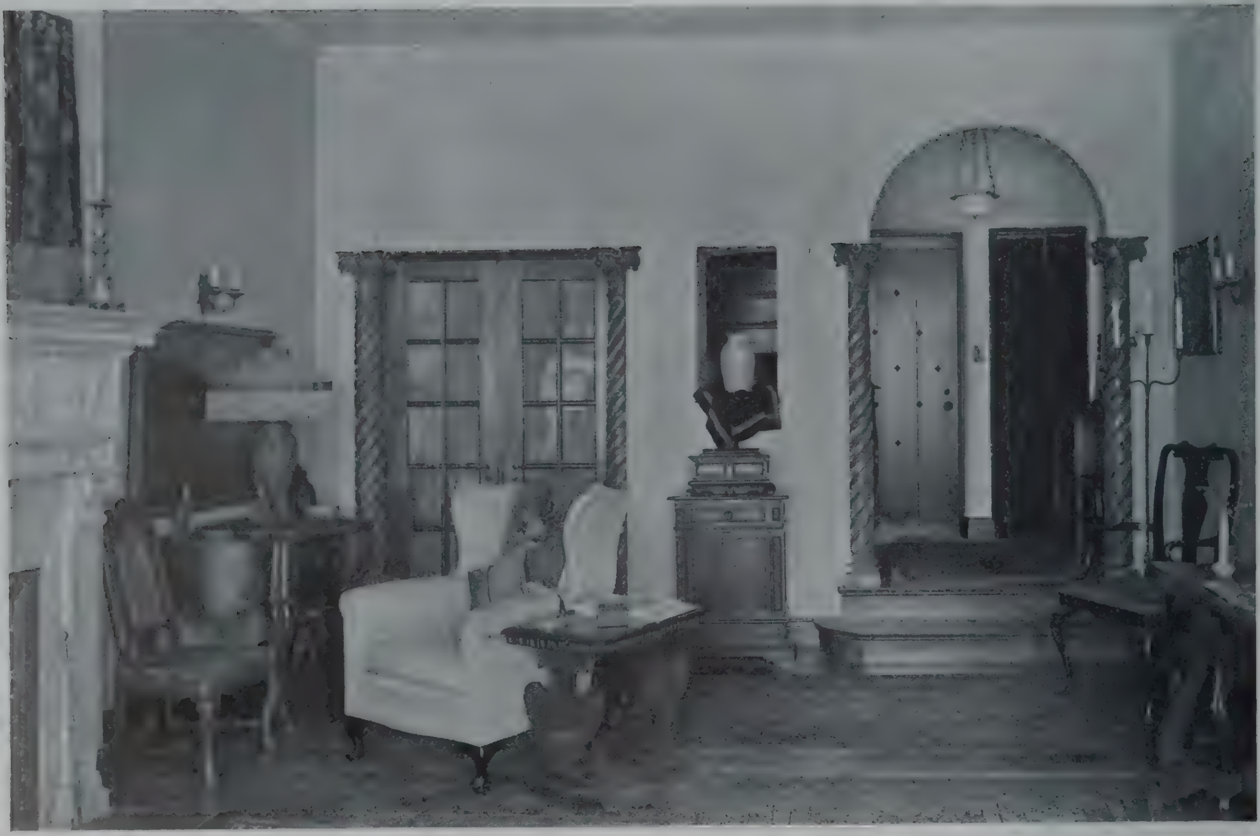
such inventions as this make living at all possible or comfortable. An ordinary 3 by 7 door conceals the bed when it is not in use, and the general idea is not at all displeasing when its usefulness is considered.

There is very little opportunity for artistic expression in these smaller suites, owing to the severely limited space within which to work. However, some very interesting effects have been produced in the form and design of the furnishings and the decorations of the walls, partitions and doorways. The small apartment is the logical field for experimenting in color effects. The popular and reliable apple green is often used to excess. If used with an idea of the general design of the room in mind, it gives an "enlarged" effect and greatly increases its beauty as well. Apple green on mantels and paneling is especially attractive. As we go from this to the more elaborate types, the arrangement approaches more nearly to that of a house of equal elaboration.

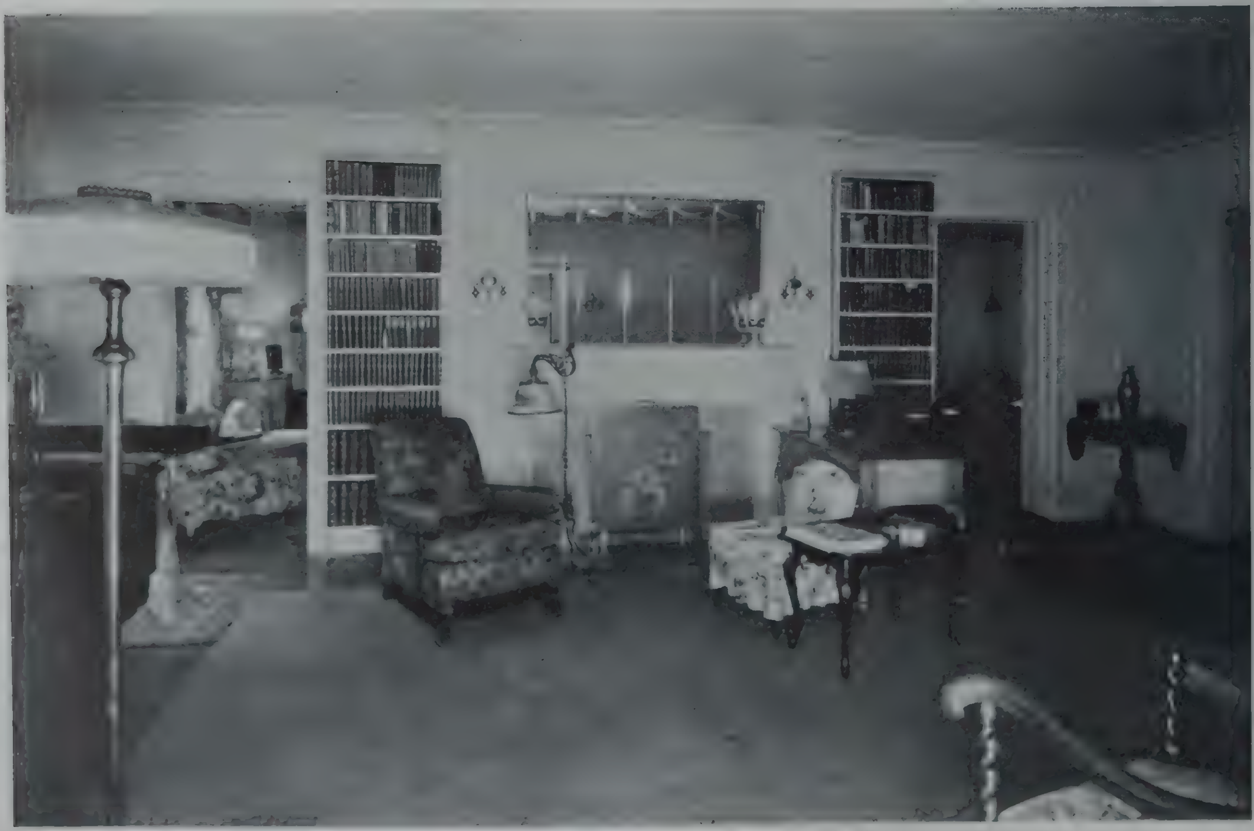
The compact kitchen is an important feature of the apartment, be it large or small, and the arrangement of its various fixtures,—range, sink, tubs, ice box, pantry, dumbwaiter, etc.—is designed to follow the usual order of their employment. A number of newly introduced features make the up-to-date kitchen a pleasure to those who use it. The mechanically cooled refrigerators; the garbage incinerators, which do away with a view of the garbage pails; exhaust flues for ranges and kitchen odors, and other equally useful and convenient arrangements give comfort to the housewife, while ironing boards fit into the wall and occupy no space except when in use. Service closets, which are opened only by the tenants and apartment service men, are merely one of many details of appointment which the modern apartment offers. Laundries are usually found for the general use of tenants in the basements or on the roofs. Here will be found a complete equipment of washing machines, tubs, driers, built-in ironing boards, etc., which in their modern perfection are savers of both time and energy for the housekeeper.

The other rooms of the apartment are not, of course, so highly organized. There is usually a great plenty of electrical outlets. In bedrooms there are long mirrors on closet doors; in bathrooms there are medicine chests and many outlets for curling irons, and in the dining rooms there are outlets for toasters, percolators, etc. The dining alcove, in the smaller apartments, varies in its position. In some cases it forms an alcove off the living room; in others it forms part of the kitchen, and is separated from it either by china cabinets or thin partitions, usually glazed. All of these practical details for space saving and labor saving reduce service and the resultant cares and responsibilities of the entire household.

The second, and perhaps the chief, method of creating individuality in apartments and of associating them with their owners' tastes, lies in the architectural decoration and finishes of the interiors. The entrance lobby, as we have said, gives the keynote to the house. Such a lobby is not used as a reception room, but merely as a passageway, and the best taste would suggest that its furnishing be reduced to a minimum, while its architectural decoration is em-



Living Room at 180 East 75th Street, New York
Harry M. Clawson, Architect



Living Room, Latham Apartments, Columbus, O.
Miller & Reeves, Architects

phasized. The space need not be great, but it may be treated richly, in marbles, in Caen stone, in relief ornament, domed, vaulted or pilastered. Its floor should be of some waterproof material,—marble, tile, terrazzo, or possibly linoleum blocks. Its lighting should not be over-brilliant nor its furnishing over-elaborate. Some sort of seat or bench, and flowers or natural greenery will be adequate for its furnishings. In character it may follow any of the more formal or monumental interior styles of the past, and it should be kept impersonal to a degree,—formal but fine, rich in suggestion, although not elaborate in decoration, suited to its surroundings.

There is a most pleasing opportunity for the architect to express his ingenuity in the lobby design. The vista from the main entrance, in its treatment, is often the feature strived for; and accordingly most interesting effects are often secured by the presence of well proportioned columns or pilasters, a plain Classic mantel of good design, and a large, cheerful fireplace with decorative andirons, broad, inviting steps, when the lobby is below the street level, and imposing chandeliers of a somewhat formal design. There should be a certain degree of reserve in the design of the lobby,—a happy medium between the heavy, overdone rooms with which we are all familiar, and the equally displeasing, frigidly bare treatment at the other extreme. Only recently, dining rooms, ball rooms and other such details of hotel appointments, have been introduced. In this respect, a close adherence to the formality of the lobby treatment should be consistently retained, in order to adhere to the most attractive feature of the apartment which makes it different from a hotel,—that of its absolute privacy. The elevators are entered directly from the lobby, and in the finer apartments they open on each floor into the private foyers of the apartments. Here a simple rendering of the style of the lobby may be used, with stone walls, marble or tile floors, and some achitectural detail. The stairways are usually of secondary importance, and are treated practically rather than artistically. Iron rails, steel treads or treads of composition or linoleum are the usual materials used.

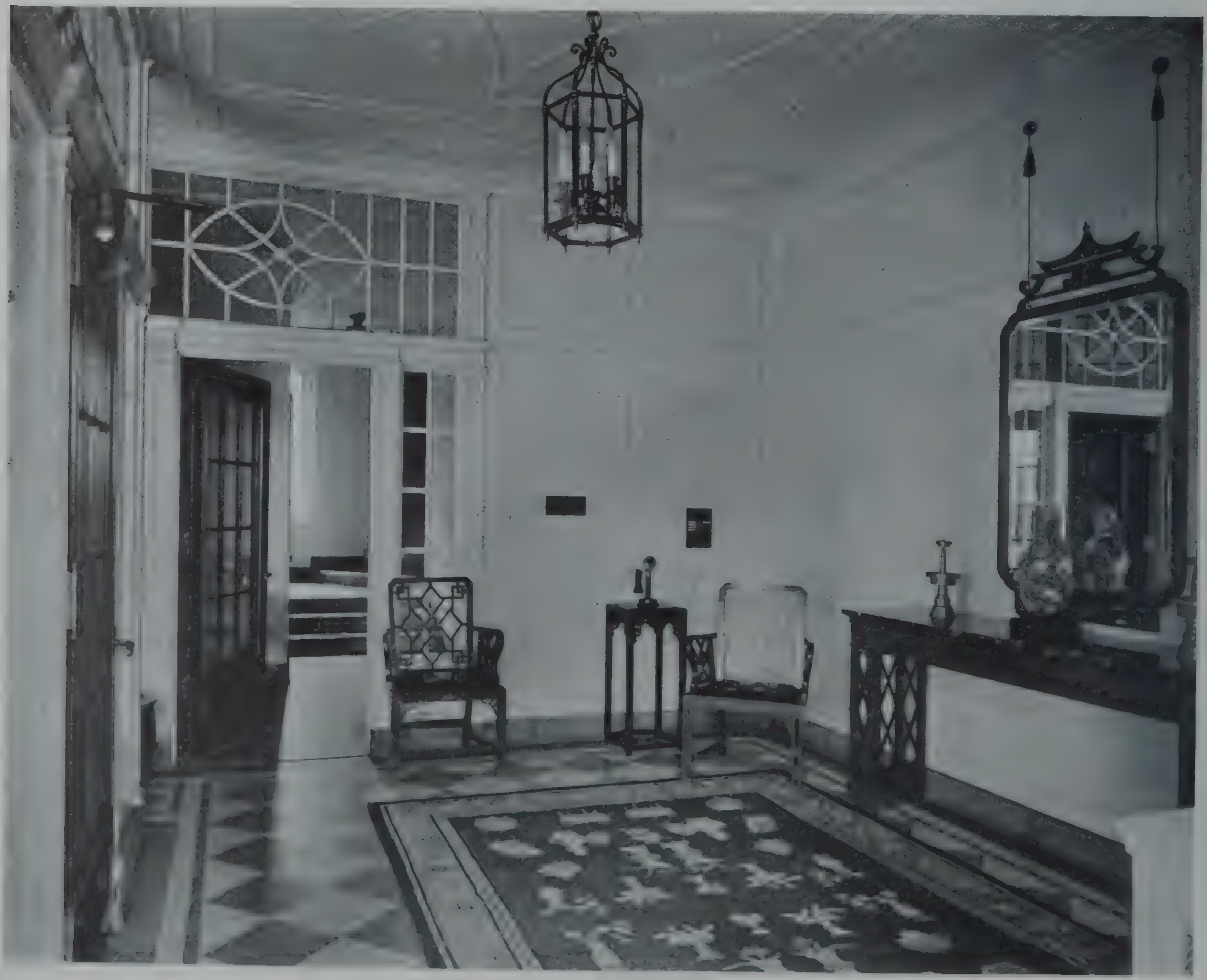
In the apartments themselves comes the real opportunity for variety in decorative treatment. Two types present themselves,—the informal, simple interior, related more to country house or provincial

Living Room, Faculty Houses, Princeton University
Park & Morgan Architects

work, and the more formal treatment, utilizing the historic styles of the past for the basis of the design. The former treatment brings in the use of plastered walls, beamed ceilings, leaded casements and great fireplaces. The latter can run the entire gamut of style, from Italian or Spanish Renaissance to the style of early Republican America. An apartment of Spanish design offers liberal opportunity for realizing the designer's fondest dreams, for the heights of ceilings and the floor plans are likely to be such than an adaptation of this style can be made.

In general, it is safer not to push to an extreme a stylistic feeling in apartment interiors, since the possessions of a tenant may not combine with decorations already in place. It is more a matter of proper scale in a simple treatment of cornices, walls, doors and fireplaces. There is a tendency to too great flatness and refinement of mouldings, which take all the character from a room. The over-use or bad use of strip paneling is another bugbear of apartment house architecture. Where strip moulding is used at all, it should define large wall areas, since small divisions will often be found not to fit the furniture of the tenant. Mantelpieces should be kept simple, allowing the ornaments of the owner to dominate and give character to this important detail of the room. The fireplace should be in absolute harmony with the mantel and the room itself. Whether it be large, small, simple or elaborate depends upon the character of its surroundings. The small, plain fireplace is the most used. The function of a fireplace in an apartment is not often more than that of ornamentation, but recent apartment house design shows a marked tendency toward use of "wood-burning" fireplaces. Rooms simply paneled in wood, or simulating wooden types of paneling, are used generally. In rooms of a more formal nature, where the ceiling is high, use of decorative mouldings in panel forms of attractive design greatly improves their appearance and gives added dignity.

With this permanent architectural detail, used carefully and without too much stylistic quality, the emphasis is laid upon the use of color. An apartment is usually entirely redecorated for a new tenant, and this gives one opportunity to choose colors which appeal to one's taste and harmonize with one's furnishings. Too long have we seen rooms painted in neutral shades of gray or putty color. Good, clear

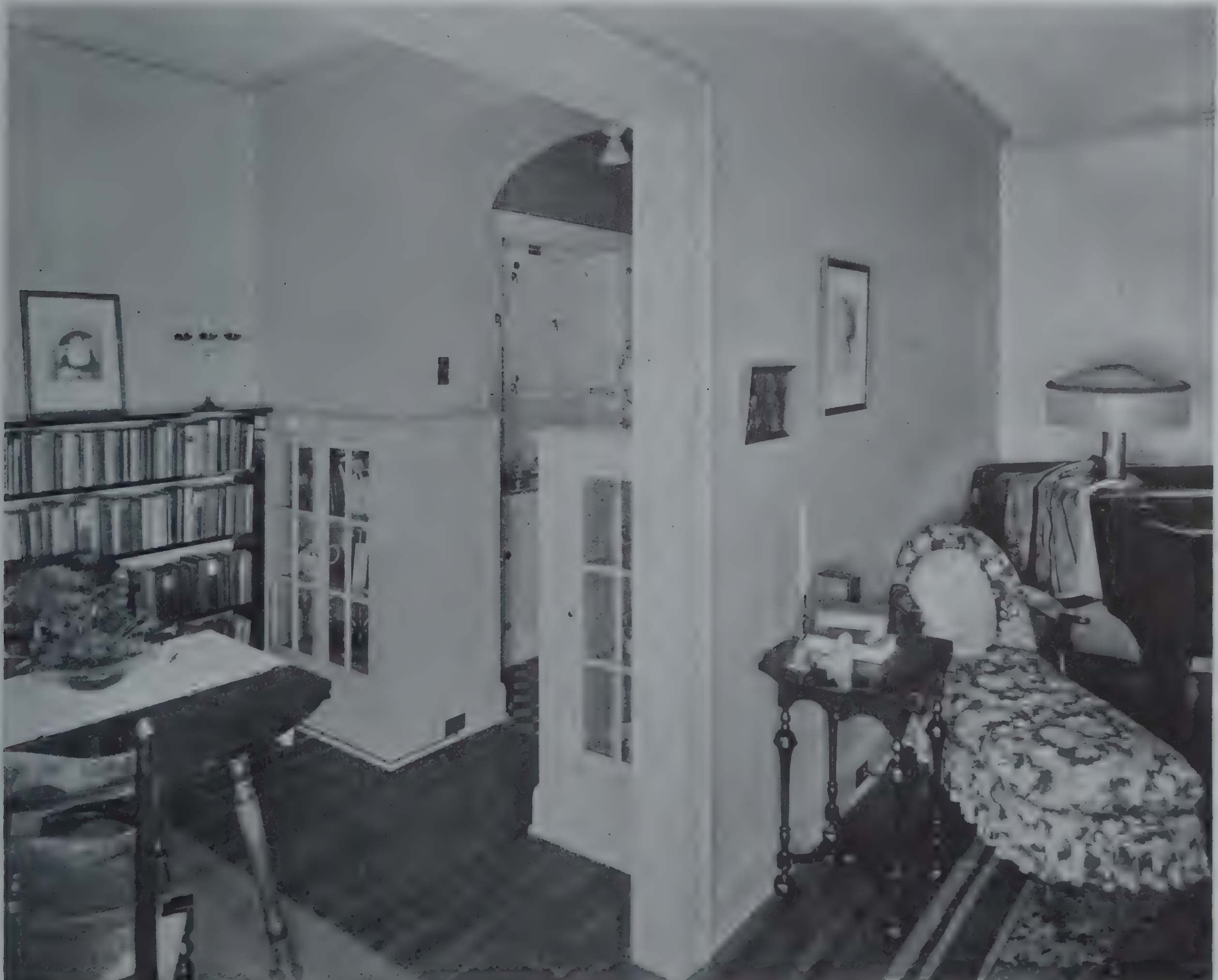


Entrance Hall, Garden Apartments, Chicago
Hugh Garden, Architect

color on walls or woodwork or both, carefully chosen to bring out the predominating tones of upholstery, hangings, paintings or incidental accessories, does much to give a vivid and personal effect to an interior. In very small apartments it is wise to paint connecting rooms with the same color. This does not mean a neutral gray, but it can be a soft, light green, a warm tan, a bluish green or a golden yellow. In large apartments the colors should vary from room to room, to give dramatic effect and contrast. The radiator boxes, too, have become a subject of the ingenuity of the designer. They have become definite parts of the room furnishings, and are treated in strict accordance with the general effect. The tops of them, heavily insulated to prevent warping, are utilized for various purposes.

Marbleizing, if not used to excess, gives an effective touch to a room. A baseboard painted black or marbleized does more to "snap up" the appearance of a room than any other single detail. Marbleizing may be applied to door trim and to mantels as well as to baseboards. Floors, in the general run of apartments, must be of oak. In special cases, however, other materials may be employed to advantage. For vestibules, halls, and even baths, marble is always a fine material. Tile, too, in its many colors and textures may be used here, and linoleum and rubber tile, in plain colors or marbleized, have found much recent popularity. For living rooms, wide oak, walnut and teak boards of random widths give unusually fine results. For some rooms carpeting is desirable.

For lighting there is a vast variety of fixtures. In rooms low ceiled and not of great pretension, side lights combined with portable lamps are preferable. In high ceiled or formal rooms chandeliers may be used, and in a hallway a ceiling light is usually necessary. Bathrooms, of late, have come in for considerable attention. Their walls may have simple architectural treatment, and the full complement of fixtures can be had in varying qualities of fineness from the manufacturers. Built-in tubs, pedestal washstands and elaborate arrangements of showers, toilets and foot-tubs can be disguised as part of a decorative scheme or frankly shown. Some very interesting effects can be had by the use of arches in the plastered walls of a bathroom. A shallow arch over the washstand, tub, or doorway is a very simple touch which can transform the most



A Typical Living Room, Latham Apartments, Columbus, O.
Miller & Reeves, Architects

ordinary bathroom and give it a unique attractiveness. Here too there is opportunity for light decoration by marbleizing the fixtures, such as towel racks, baseboards, etc. Colored tile shows signs of popularity for bathrooms, and many are desirable.

In large duplex apartments, the stair halls form important and often beautiful features. Here stairs of wood, of stone or of metal may be used, with balustrades of these materials. Mahogany handrails add an essential touch in their curving lines, lifting from floor to floor, emphasizing the grace of detail.

We have considered the plans, decorations and construction of apartment house interiors in a general way, for this after all is the only method of discussing such a broad field, where so much diversity of treatment is possible. It is hard to gain a perspective of just what is the ultimate goal of the apartment. Its original aspect, that of a non-fireproof, ugly and cheaply constructed edifice, whose tenants were largely temporary because of the unsatisfactory living conditions in them, has completely changed until it is now the attractive, homelike structure with which we are fairly familiar,—a beautiful, towering building containing homes built one upon another, and yet each possessing privacy equal to that of an individual house! The care and worries of a privately owned home are now banished by the special service and comfort, even luxury, which such a combination of householders makes possible, and added to this we have the same opportunity for expressing artistic individuality.

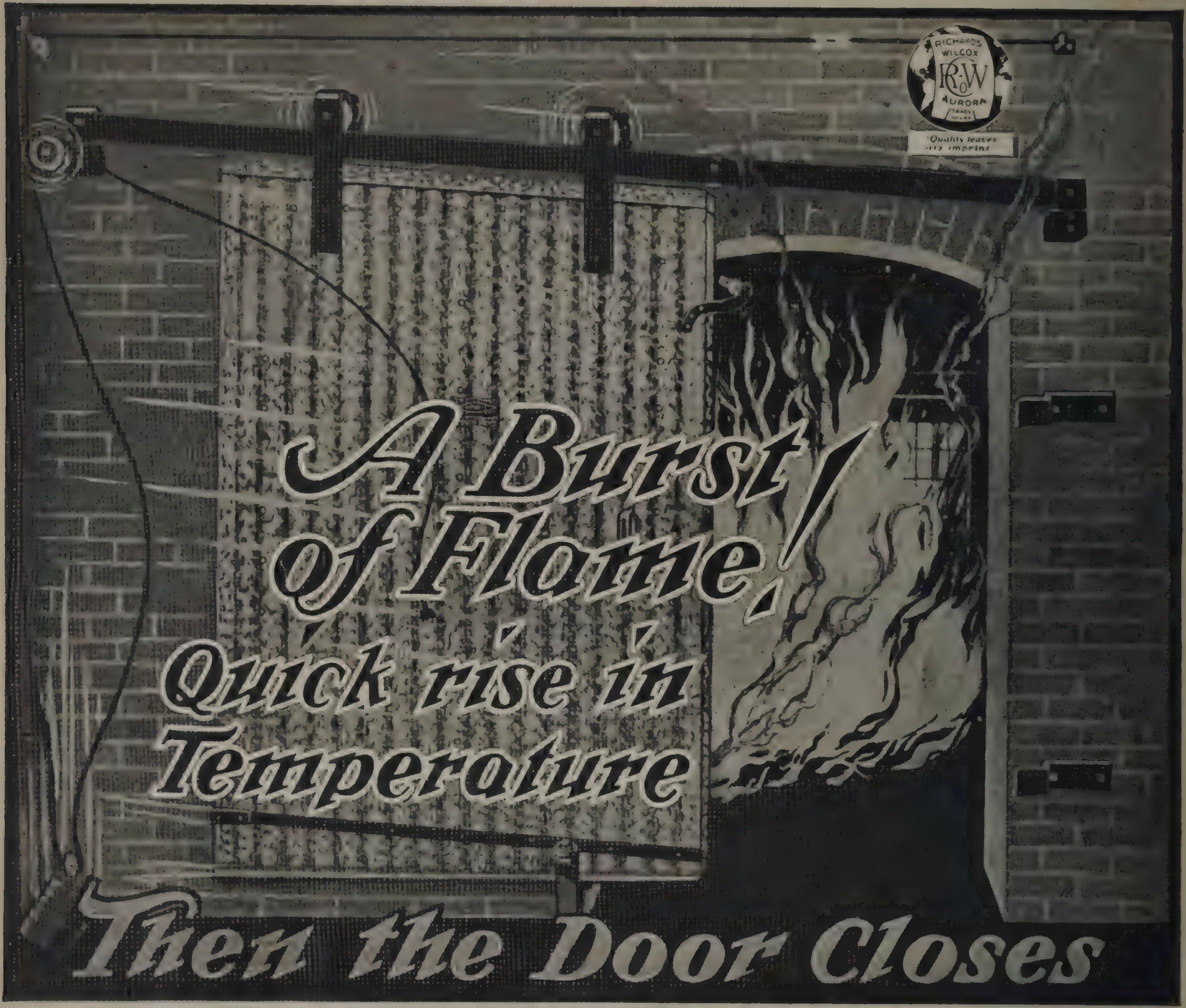
The whole subject is one upon which volumes could be written, a volume to each different phase of interior treatment. The intention here is merely to suggest the enormous variety of materials, methods and commercial products which can be used in the modern apartment to complete its equipment and to render its artistic quality a suitable background for the lives of its occupants. In general the best principle to follow is to make the fixtures of the kitchens, baths and other purely utilitarian portions of the most up-to-date and special sorts, while keeping the permanent architectural features in correct and consistent scale, with not too strong an emphasis upon their stylistic values. This gives opportunity to the tenant to create in color and arrangement of furnishings an atmosphere which is his own, his home, and thus expressing himself.

Living Room at 180 East 75th Street, New York
Harry M. Clawson, Architect

F.a.

THE ARCHITECTURAL FORUM

OCTOBER
1925



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BOOK DEPARTMENT

Some Domestic Work of Sir Edwin L. Lutyens

A Review by LEIGH FRENCH, JR.

AN appropriate time has been chosen for the republication of this monumental volume of the work of Sir Edwin Landseer Lutyens. The award to Sir Edwin, early during the present year, of the gold medal of the American Institute of Architects, gives striking evidence of the high regard in which his work is held in America, a regard which, long present both here and in England, is reflected in the considerable following which this most able and versatile architect has built up here in the United States.

Books Reviewed

Houses and Gardens of Sir Edwin L. Lutyens.
Meeting House of the First Baptist Church in Providence.
The Story of Architecture.
Book of Home Furnishing.
Editorial English.
Gardens In and About Town.
Wood Finishing.
Swedish Architecture of the Twentieth Century.

Books Received

The Dome of the Rock in Jerusalem. $42 Net.
A Short History of the Building Crafts. $3.50 Net.
Relation in Art. $6. (*Oxford University Press.*)
Problems in Architectural Drawing. $1.08. (*Bruce Publishing Co.*)
Principles of Decoration. $3.50. (*Charles Scribner's Sons.*)

There is another reason why this volume is particularly opportune at this time. It gives a very adequate presentation of Sir Edwin's domestic work, together with the gardens, interior treatment, and personal and intimate touches which these require, and his achievements in this type of work mark the first phase of the accomplishments of this foremost of British architects. Of late years the work of Sir Edwin Lutyens has swung away from the designing of domestic structures and toward that of public and monumental buildings. Everyone knows the chaste beauty and simplicity of the Cenotaph, in Whitehall, and few architects have had the opportunity of creating so distinguished, vast and enduring a monument to themselves as has been presented to this architect in the creation of a whole capital city,—Delhi, the new capital of India. Thus it will be seen that the present volume marks the completion of one phase of an architect's work, which at some future date it is hoped will be supplemented by a second volume on the great monumental work of the same man, thus recording later achievements.

It is probably because Sid Edwin Lutyens has achieved such signal success in so many widely differing modes of expression that Sir Lawrence Weaver considers his work especially deserving of close and critical study. For this valuable faculty of adapting an honored tradition to the needs of his own generation, and also because of his inspiring influence, the author feels that a reprint of the original volume is timely and appropriate, an opinion with which architects generally, both in England and America, will heartily agree. As its title indicates, this work is distinctly a book of houses and gardens. It includes, as well, a few examples of the restoration of fine old houses, severe tests of an architect's ability to work very closely within an old tradition. All aspects of this work are set forth in so interesting a manner that, aside from much valuable information for the architect reader, there is much pleasure in store for the general reader, who reads for pleasure, or possibly for information.

Sir Edwin sees each of his problems as a whole. His houses invariably fit perfectly their natural sites, and because of their unity of place and architectural style they acquire the character of "livableness," always a distinguishing mark of the great old houses of England. He is a past master of the "picturesque" in architecture, and his compositions are invariably so carefully studied that from all aspects they form charmingly arranged pictures. Each house has its distinct personality, which retains its consistency from all angles, owing to the author's study of his problem as a whole, undisturbed by an over-emphasis upon any special feature. Fine proportions have been at the basis of this unbroken series of beautiful houses, fine proportions emphasized by interesting line, by variation of textures and charming combinations of color. The compositions are varied and possess great dramatic contrast between their parts, which are, however, welded into consistent wholes. There is evidenced thoughtful study in the relations between broad, unbroken masses of building and others interestingly broken with fenestration, and with rooms contrasting in both plan and elevation.

In reviewing this work one should not fail to give a word to the author, Sir Lawrence Weaver. Throughout a long series of publications on widely varied subjects, Sir Lawrence has shown his regard for the essential soundness of English architectural tradition. Of all the architectural critics in England, he has done the most, perhaps, to present the great traditions of the past to the builders of the present, and now we find his criticism and appreciation directed toward modern work,—a fact which alone should indicate the lasting value of the work.

HOUSES & GARDENS OF SIR EDWIN L LUTYENS. By Sir Lawrence Weaver. Price $25. Charles Scribner's Sons, New York.

GRADE SCHOOL BUILDINGS; BOOK II

IN no department of architecture have the last ten years seen quite the progress which has been made with schoolhouses, a class of buildings of the first importance, since they exert a strong influence upon their communities, and by their architectural excellence or the lack of excellence they elevate or lower the architectural standards of entire districts. Study of school structures, particularly at the hands of a group of well known architects, has resulted in their being given a high degree of architectural distinction and dignity in the way of design, while study directed toward their planning and equipment has led to their being practical and convenient far beyond what was regarded as an advanced standard of efficiency even a few years ago.

Kensington Schoolhouse, Great Neck, N. Y.
Wesley Sherwood Bessell, *Architect*

THIS volume, a companion to another published in 1914, records the results of endless study and experiment in different parts of the country, summed up and presented. By illustrations of exteriors and interiors, by floor plans and carefully written descriptions and articles by well known architects and educators the present high standard of schoolhouse design is made plain, and these results which have been achieved by a few architects and school boards are thus made possible to all architects who are interested in schoolhouse design. The compiler has selected from almost 1000 exteriors and floor plans the school buildings to be illustrated, and the volume records "a process of innovation and elimination, namely, the introduction from time to time of features which have been deemed desirable and practical, and the elimination of things which, owing to changed school methods, are no longer required."

400 pages; 7¾ x 10½ inches
Profusely Illustrated; Price $10

ROGERS & MANSON COMPANY
383 MADISON AVENUE NEW YORK

THE MEETING HOUSE OF THE FIRST BAPTIST CHURCH IN PROVIDENCE. A History of the Fabric. By Norman M. Isham. Issued by The Charitable Baptist Society on the 150th Anniversary of the Dedication of the House, May 28, 1775.

THE history of its old Baptist Meeting House is closely and intimately bound up with that of Providence itself. As one motors through the city and passes the old building, calm and serene and surrounded by its ample plot of closely clipped lawn, one scarcely knows whether most to admire the severely beautiful, finely drawn lines of the building itself, the graceful soaring of its marvelous spire, or the calm, unruffled dignity with which the old meeting house has faced the changes of its 150 years, which have wholly altered its setting.

When in 1774 the congregation of the First Baptist Church found that it had outgrown its meeting house, the planning of its successor was recognized as a duty requiring the utmost thought and study. The churches and meeting houses of Boston, where a committee went in search of inspiration, seem to have offered but little of interest, but the same committee became deeply impressed, and was considerably influenced, by various churches in England by James Gibbs, notably St. Martin's-in-the-Fields, drawings of which were contained in his "Book of Architecture." The plan of the new meeting house was not a strict following of any existing building, though its spire, one of the most graceful and delicate in America, was undoubtedly based closely on the teachings and drawings of the Gibbs work; the method of its framing is made plain by the diagrams of Plate 12 in Mr. Isham's book, the framing made up of several stages, not resting one on the top of another, as might be supposed from the finished exterior, but "telescoped," so to speak, the upper into the lower. No careless, slipshod construction in 1774!

This work is a carefully prepared and well illustrated history of a famous building and of the alterations in its fabric and furnishing which changes of custom have brought during a century and a half. It was prepared by Mr. Norman M. Isham, F. A. I. A., of Wickford, R. I., through whose courtesy a copy has come to THE ARCHITECTURAL FORUM for examination and review.

THE STORY OF ARCHITECTURE THROUGHOUT THE AGES. By P. Leslie Waterhouse. 272 pp., 4 x 6¼ ins. Price $2. D. Appleton & Co., New York.

STUDY of architecture, which today is interesting to many, presents at first view what seems to be a maze of technicalities and seems to demand more study and application than any but the most enthusiastic are quite likely to give to it. Perhaps to encourage those whose interest might not be equal to the study of larger works this helpful little volume has been prepared by a professor at Christ Church who is also a Fellow of the Royal Institute of British Architects. Exceedingly well written and adequately illustrated, it surveys the history of what the author calls the "oldest of the arts" beginning with a chapter on Egyptian Architecture and ending with Architecture Today—which means architecture in America and Great Britain. Nothing of vital importance has been sacrificed to the brevity necessary to cover a subject so large in 261 small pages, and the work's accuracy as well as its completeness should recommend it to students of architecture or to the public in general.

THE BOOK OF HOME FURNISHINGS. By Ross Crane. 269 pages 5¼ x 7½ ins. Price $3. F. J. Drake & Co., Chicago.

FROM among the countless works on household furnishing and decoration which are being published there are a few which seem destined to serve a really useful and constructive purpose. "Interior decoration," like "Colonial" architecture, has suffered much from being carelessly written of by people who know little if anything about it, but whose opinions are taken seriously by many who accept blindly whatever appears in printed form,—particularly when it appears between the two covers of a book! Mr. Crane's advice to those interested in interior decoration is sound and valuable indeed, and his color schemes and diagrams for the arranging of rooms are excellent. It seems a pity that better photographs of interiors could not have been secured, where actual interiors are illustrated, and the frequent lapses of the text into a "fictional" or "colloquial" style constitute a regrettable error in the matter of taste. Probably, however, Mr. Crane has found that sound advice on any subject must be disguised, made palatable, and given a sugar coating to be acceptable to the public! A close study of the teachings of the work would be of great value to most of the interior decorators now at work, and it is particularly recommended to architects.

EDITORIAL ENGLISH. By Arnold Levitas. 322 pages, 5½ x 8¼ ins. Price $2.50. The Roy Press, New York.

GROWING appreciation of the value of good English, adequate punctuation and similar details of book and magazine publishing brings forth a number of manuals on the general subject, many of which are useful indeed. At the same time it may well be doubted whether any work could be prepared which would command the entire approval of all those for whose use it is designed. Every publishing concern forms, in the course of time, its own "use," the result sometimes of a habit or custom in the editorial department and sometimes of personal whims or preferences of someone in charge. Thus during the lifetime of the late Mr. Bennett elaborate rules were established for guiding the staff of the New York *Herald*; something quite similar was done for Mr. Dana's *Sun*, and quite lately one large publishing house has seen fit to dignify the matter by issuing a volume on the intricacies of its own "use." A language such as English, built up as it is of words from many languages, ancient or modern, is difficult to regulate or govern by precise rules, particularly when there exists no body fully qualified to decide what is correct. One often wishes that in English-speaking countries there existed a ruler (such as governed in pre-war Germany) who could decide, by exercise of his divine right, upon the spelling of a word or the use of a preposition! As it is, one can only study the best models, and upon such a study establish a custom for one's individual or office use.

Of quite a number of somewhat similar works we consider this by far the best. It has been prepared in view of long experience in editorial work, publishing and lecturing, and it is wholly free from the fads and idiosyncrasies which sadly mar, when they do not ruin, so many otherwise useful manuals. Its excellent teaching in regard to the use of architectural terms should commend it to writers on various subjects for the architectural press.

GARDENS IN AND ABOUT TOWN. By Minga Pope Duryea. 183 pages, 6 x 9¼ ins. Price $5. E. P. Dutton & Co., New York.

THOSE who make an effort to keep abreast of the progress of architecture,—even of domestic architecture alone,—are sometimes inclined to marvel at the hold upon popular fancy which has been obtained by gardens and gardening. It is as though Americans had taken a leaf from the book of their European cousins, particularly their English cousins, to whom a dwelling of any size, anywhere, without its garden is unthinkable. Travelers to Italy or Spain bring away pleasant memories of the glimpses of a cool, green cortile or patio had as one passes an open door or gate in some apparently uncompromising brick or stucco wall, and many remember the pleasant little breathing places tucked away behind or between some of the old houses in New Orleans,—relics, perhaps, of the French or the Spanish *regime,* both of which have existed in New Orleans.

So prevalent and widespread, in fact, is interest in gardens that they are being made even in cities. One never dreams of the possibilities latent in even the most ordinary of city backyards until one such dreary area has been transformed into a spick and span little garden, and the possibilities are multiplied when many such backyards are combined to form, for example, such a glorious garden as one which exists in the heart of the East Side of New York, hidden away between Third Avenue and Second, a number of individual gardens, but so separated by low parapets that the effect is that of one magnificent garden in which are fountains, old Spanish or Italian ironwork, and some fine old trees which have somehow managed to survive the vicissitudes which beset plant life in New York. Some of the most interesting gardens are those which cover the smallest areas, and when one has no area at all in which to garden, there are always the possibilities (by no means to be despised!) held forth by window boxes.

Mrs. Duryea's book is calculated to increase the number of gardens in and near cities;—in fact many of the number already existing are probably due to her stimulating and encouraging teachings, which are calculated to point out the possibilities which lie hidden in even the tiniest area of ground or roof in the wilderness.

WOOD FINISHING. By Harry R. Jeffrey. 177 pp., 5¼ x 7⅝ ins. Price $1.50 The Manual Arts Press, Peoria, Ill.

MOST of the disappointments which follow the use of stains, fillers, varnish and other materials used in the finishing of wood surfaces may be traced to the lack of proper directions,—or rather to the attempt to follow directions which are so technical as to be non-understandable. This useful work, one of a number of volumes on craftsmanship of various kinds, has been prepared "to put before teachers, students and amateur workers information regarding the most common processes of wood finishing, and to present this information in a practical, non-technical manner suitable for the average school shop or the workshop of the average home."

All this is exceedingly well done, and the volume will be equally valuable in the home, the shop, and the trades school. We do not know of a work which so well covers a large subject in small space. The chapter entitled "Finishing Floors" is alone worth the cost of the entire volume, for the rapid deterioration of floors which often takes place is likely to be due to poor finishing in the first place, due in countless instances to ignorance.

Modern Sweden and Its Architecture

A Review by ROBERT McLAUGHLIN

STUDY of architecture is likely to involve the selection, as its subject matter, of whatever is of most immediate and practical interest. This precludes, of course, studying or the acquiring of even a superficial knowledge of many types of architecture which possess, perhaps, more than usual interest, types or forms which have been perhaps slowly growing up for centuries, but which are unknown or at least little known to Americans, because they have been crowded out of the popular vision by others more immediately useful. Such, for example, is the architecture of Sweden, a country cut off from close contact with America and most of western Europe, not so much by its seas and geographical remoteness as by its possession of a foreign or at least a "different" civilization and a language peculiarly its own, which give a certain isolation.

The volume under review is a very valuable book because of its subject, and also because of its manner of presentation. In spite of the fact that Sweden's place in past architecture has not been particularly distinguished, her contemporary buildings certainly arrest attention. One who has followed the development of Scandinavian architecture during the past will feel more at ease in the presence of these modern buildings. An essential personality is imparted to them by climatic conditions,—roofs are are steep; windows are as small as will admit sufficient light; exterior detail is not wasted where it might count only in a southern atmosphere. Add to this a strong manifestation of a racial temperament, which may be somewhat the product of the climate, and there is enough to give any naturally evolved art plenty of individuality. Therein lie the chief reasons Swedish architecture may appear bizarre to eyes trained in other countries; certainly it is not because of a straining for the new. Swedish architects have not thrown the past to the four winds. Their work is essentially in the tradition, meaning by this something far deeper than designing with pencil on paper and eye on a measured drawing before the designer.

Present-day architects in Sweden are concerned with the finest traditions of great ages in building,—the priceless heritage which monuments of the past hold for those who will do more than stand stricken and adoring before them; who will seek to learn from them the "means whereby" these results were obtained. This is simply attempting to apply the ideas and terminology of Mr. F. Mathias Alexander to architecture. To believe that tradition means reproducing faithfully and even with finest taste the monuments of the past, results in a skin-deep architecture where old beauties become new frills. Swedish architects are keenly and reverently aware of these noblest of traditions: essential truth clothed in architectural form; a striving for that most elusive but satisfying beauty, which is simplicity; a sympathy for and alliance with the finest craftsmanship. The past offers us her achievements for our delight, her methods of attainment for our interest and study, and our profit.

A Church in Stockholm
From "Swedish Architecture of the Twentieth Century"

But this book. I wish the illustrations were larger, but then if they were, they would be fewer. There are upwards of 300, the range of titles including a technical school, storage warehouses, a cemetery, a "movie" theater, a power plant, and workingmen's cottages, as well as the public buildings, churches and great houses such as in America still constitute our chief show of architecture. Professor Lallerstedt's Stockholm University for engineering and architecture is here. There is no attempt at a grand, balanced, domed grouping, as in our Technology buildings at Cambridge, nor does the architect go to the other, modern French extreme, striving to express the purpose, construction, and every other inherent quality of the building in its exterior form. Careful, painstaking study of wall surfaces and openings is characteristic of the best modern Swedish work. Mr. Eliel Saarinen's work is not shown here, though I believe Sweden has a strong claim on him. There are churches and houses built in the native timber fashion, and towers abound in this flat, level country.

The admirable introduction by Mr. Ahlberg, himself a practicing architect in Stockholm, is interesting in describing facts and extremely valuable in setting forth the point of view behind the work. He himself mentions the need for an evaluation of modern Swedish architecture from the outside at a proper perspective. It is to be hoped that this book will arouse such discussion, for the architecture of any country has much to learn from the rest of the world and usually much to give, and broad dissemination of ideas and full acquaintance with what is being done are helpful to architects everywhere.

SWEDISH ARCHITECTURE OF THE TWENTIETH CENTURY. Introduction by Hakon Ahlberg. Preface by F. R. Yerbury. Price $25. Charles Scribner's Sons, New York.

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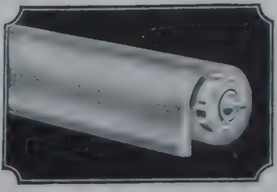

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The ARCHITECTURAL FORUM

VOLUME XLIII

NUMBER 4

CONTENTS *for* OCTOBER 1925

PLATE ILLUSTRATIONS Architect Plate

Tribune Tower, Chicago *John M. Howells and Raymond M. Hood, Associated* 57-61

The Casa de Manana, La Jolla, Calif. *Edgar V. Ullrich* 62-64

House of Charles Forman, Esq., Winnetka, Ill. *Edmund B. Gilchrist* 65-67

Kansas City Life Insurance Company Building *Wight & Wight* 68-72

LETTERPRESS Author Page

Cover Design: McPhedris House (Before 1728), Portsmouth, N. H. ....*From a Drawing by Louis C. Rosenberg*

The Editor's Forum 53

Tribune Tower, Chicago *From a Lithograph by Birch Burdette Long* *Frontispiece*

Tribune Tower, Chicago *John M. Howells and Raymond M. Hood, Associated Architects* 185

Kansas City Life Insurance Company Building *Wight & Wight, Architects* 191

Prize Winning Drawings of the Ideal Cellar Competition 193

California Palace of the Legion of Honor *George A. Applegarth, Architect; Leigh French, Jr.* 201

Spanish Architecture in the Modern Hotel *Boardman Pickett* 209

LETTERPRESS (Concluded) Author Page

The Building Situation 213

Power and Heating Plants *J. J. Cosgrove* 215

House of Charles Forman, Esq., Winnetka, Ill, *Edmund B. Gilchrist, Architect* 219

Use of Half-timber, Brick and Stucco as Shown in Recent Work of Frank J. Forster 225

Grant Thorn House, New Rochelle, N. Y. *D. A. Summo, Architect* 233

Francis Rogers House, New Rochelle, N. Y. *D. A. Summo, Architect* 235

House of Miss Edith Bogue, Montclair, N. J. *Clifford C. Wendehack, Architect* 237

Frank Nobbe House, St. Albans, N. Y. *Clifford C. Wendehack, Architect* 239

Paul Greig House, St. Paul *Kenneth P. Worthen, Architect* 241

House of Theodore Christienson, St. Paul *Kenneth P. Worthen, Architect* 243

F. W. Butler House, St. Paul *Kenneth P. Worthen, Architect* 245

House of W. C. McDonald, Winnetka, Ill. *William Campbell Wright, Architect* 247

The Theater of the Palace of Fontainebleau *Samuel E. Gideon* 249

Combining Furniture of Different Periods *Alfred Lowden* 255

PARKER MORSE HOOPER, Editor

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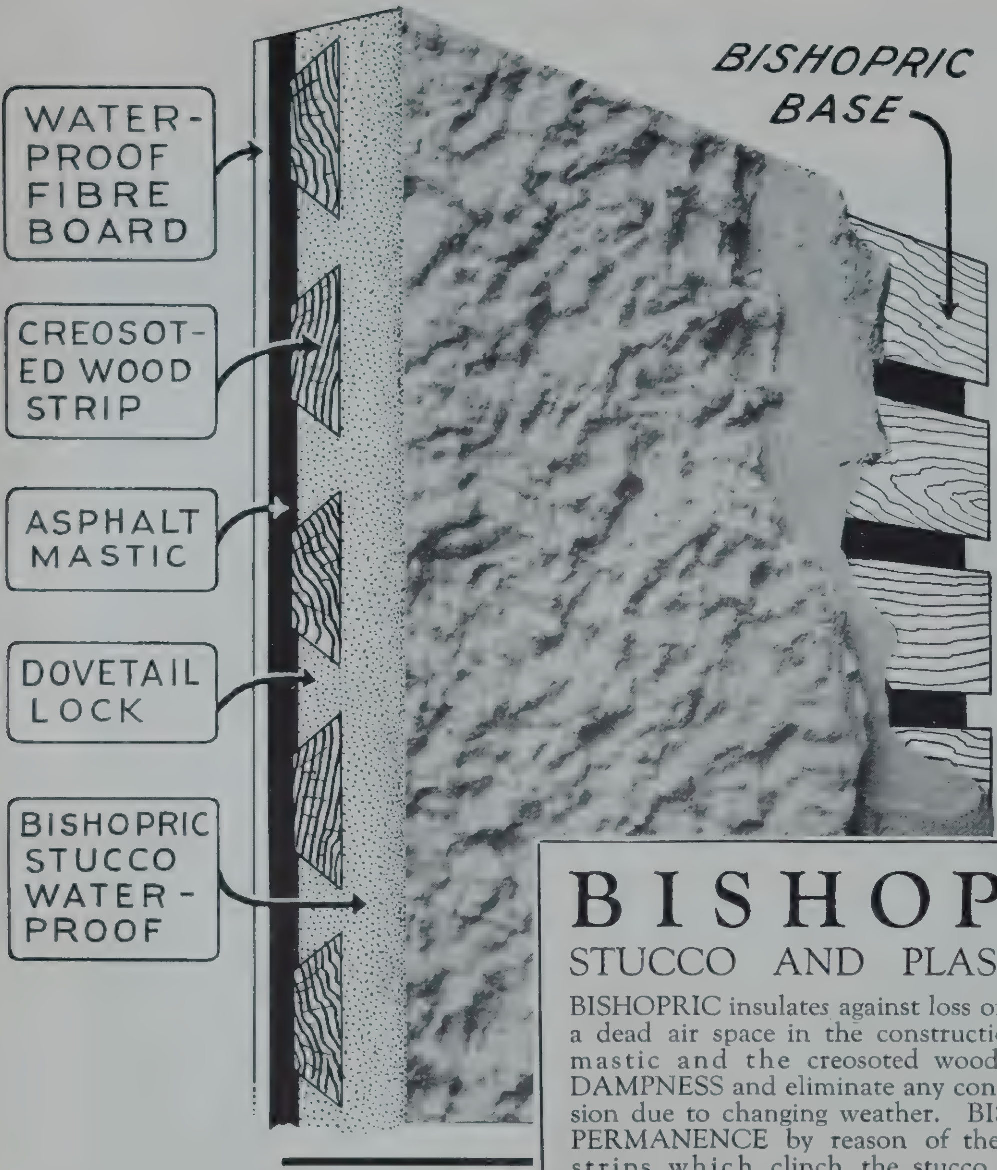

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THE EDITOR'S FORUM

ARLINGTON HOUSE

NO one will grudge the money which the War Department proposes to spend for repair and renovation of the Lee mansion at Arlington. It deserves to be cherished as carefully as Mount Vernon. With the latter, in fact, its history is closely connected, tradition declaring that Washington often visited the site before his adopted son, George W. P. Custis, built the present house. As heir to Martha Washington, Custis became the custodian of many Washington relics, which he installed in Arlington House. Upon his death they passed into the hands of his daughter, Mary, the wife of Robert E. Lee, the last of its private owners.

Aside from these personal associations of the Lee house, it is encouraging to see steps taken to preserve a spot made famous in American history. The last few years have seen a new awakening of interest in places of national and local historic importance. The campaign for the preservation of Jefferson's home, Monticello, is hardly yet completed. There has been a recent move to make a public museum of The Grange, Hamilton's house in uptown New York. New York state has been trying to mark historic highways and to commemorate famous battle sites by erecting monuments. Last year Philadelphia was concerned about the possible destruction of Franklin's early home in that city. Here in New York a campaign to save and move Monroe's house has lately met with gratifying success. The intention in each case has been the same,—to preserve for future generations places intimately associated with the history of the United States. Of these Arlington House stands out among the most beautiful, interesting and architecturally important.

OLD ROOMS TO BE EXHIBITED

THE management of the Museum of Fine Arts, Boston, announces the approaching installation in its new wing of part of the Museum's rich store of treasures of old American interior woodwork, furniture, and other objects. For many years, as occasion and accumulation of funds have made it possible, the Museum has been adding to its excellent collection of paneling and other woodwork from old New England buildings. Certain entire rooms, with their walls and woodwork, are now to be assembled or rebuilt, and furnished in the manner of their respective periods as an object lesson to present-day architects and interior decorators.

While this department will be a worthy rival of the now famous "American Wing" at the Metropolitan, there will be many points of difference. A new departure in the Boston Museum will be that the exhibits will not be confined entirely to the rooms, but adjoining each room there will be a gallery containing many other objects of the period. Freedom of movement will be one of the special aims in constructing this new wing. To obviate the crowding of visitors, passage will be directly through the rooms, and there will be nothing of the "alcove" effect that has been adopted in some other museums.

Important among the American rooms will be three from the Derby-Rogers house at Peabody, Mass., which in its prime was one of the finest examples of the architecture and furnishing of the early Federal period in America, Samuel McIntyre being the architect. It was completed in 1801 for Elizabeth Derby, the eldest daughter of Elias Haskell Derby, a merchant of Salem. Other interesting objects which will be restored in the new wing are interior fittings from the Jaffrey house in Portsmouth, N. H., built in 1730, the earliest eighteenth century house constructed of wood in Portsmouth, dating ten years later than the famous Warner house, built of brick, said to have been imported.

This house was an early example of the Georgian manor, and there were fine paneling and a handsome stairway. The house was built by George Jaffrey, Jr., who was graduated from Harvard in 1702.

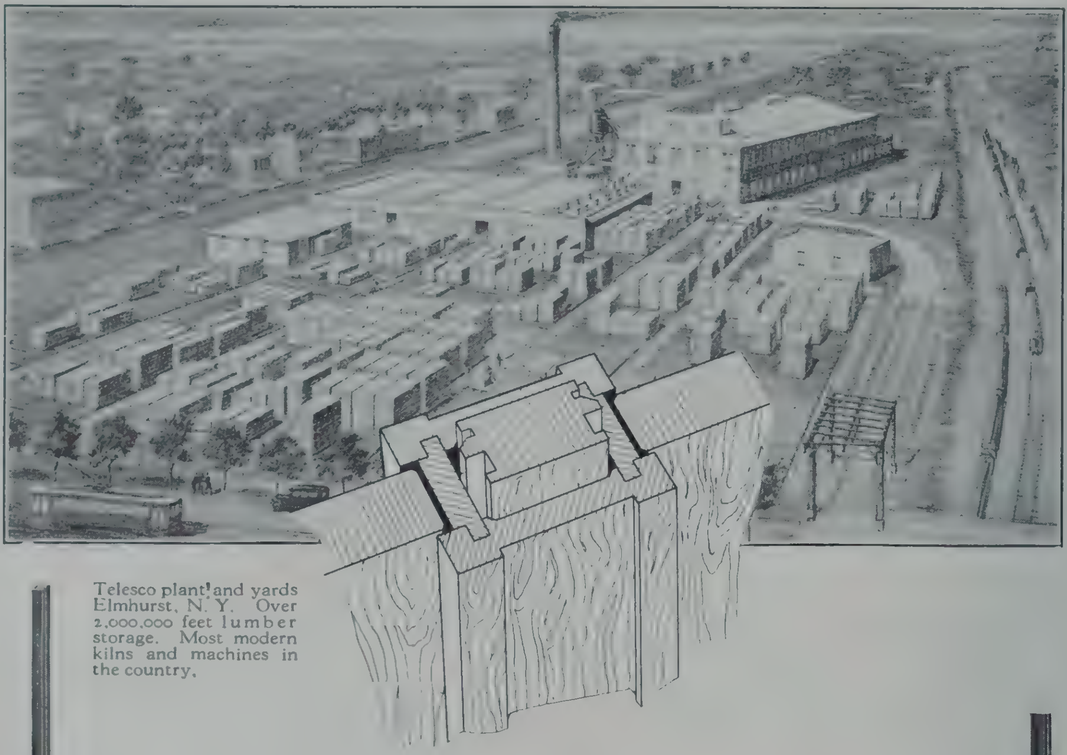
PLANNING THE CHURCH

WITH a view to offering guidance in the designing and planning of places of worship, the Methodist Board of Home Missions and Church Extension, 1701 Arch Street, Philadelphia, issues a brochure entitled "Building the Seven-Day-A-Week Church." It is not precisely a book of recommended church plans, since every building problem should receive special study; it is rather a presentation, in brief form, of suggestions for those concerned with the planning of new church buildings or the alteration of existing structures, the illustrations and plans merely indicating the means by which certain problems, each involving different circumstances and limitations, were solved and difficulties removed.

The brochure makes due and full recognition of the claims of architecture, and a wide distribution of the publication would without doubt arouse interest in architecture in fields where its importance is frequently overlooked. A complete bibliography adds to the usefulness and flexibility of the publication.

ERRATUM

WE regret to find that the name of Robert M. Allen was omitted from the pages of the August number of THE ARCHITECTURAL FORUM illustrating the Roanoke Country Club, Smithey & Tardy and Mr. Allen were associated in the designing of the club, and joint credit should be given them.



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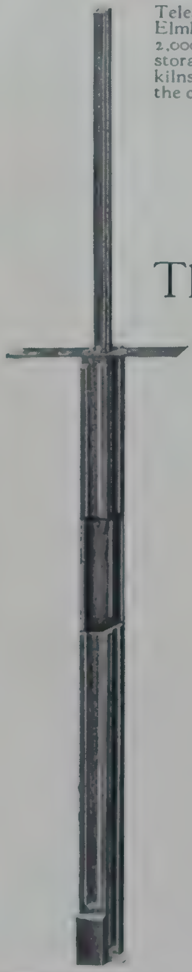

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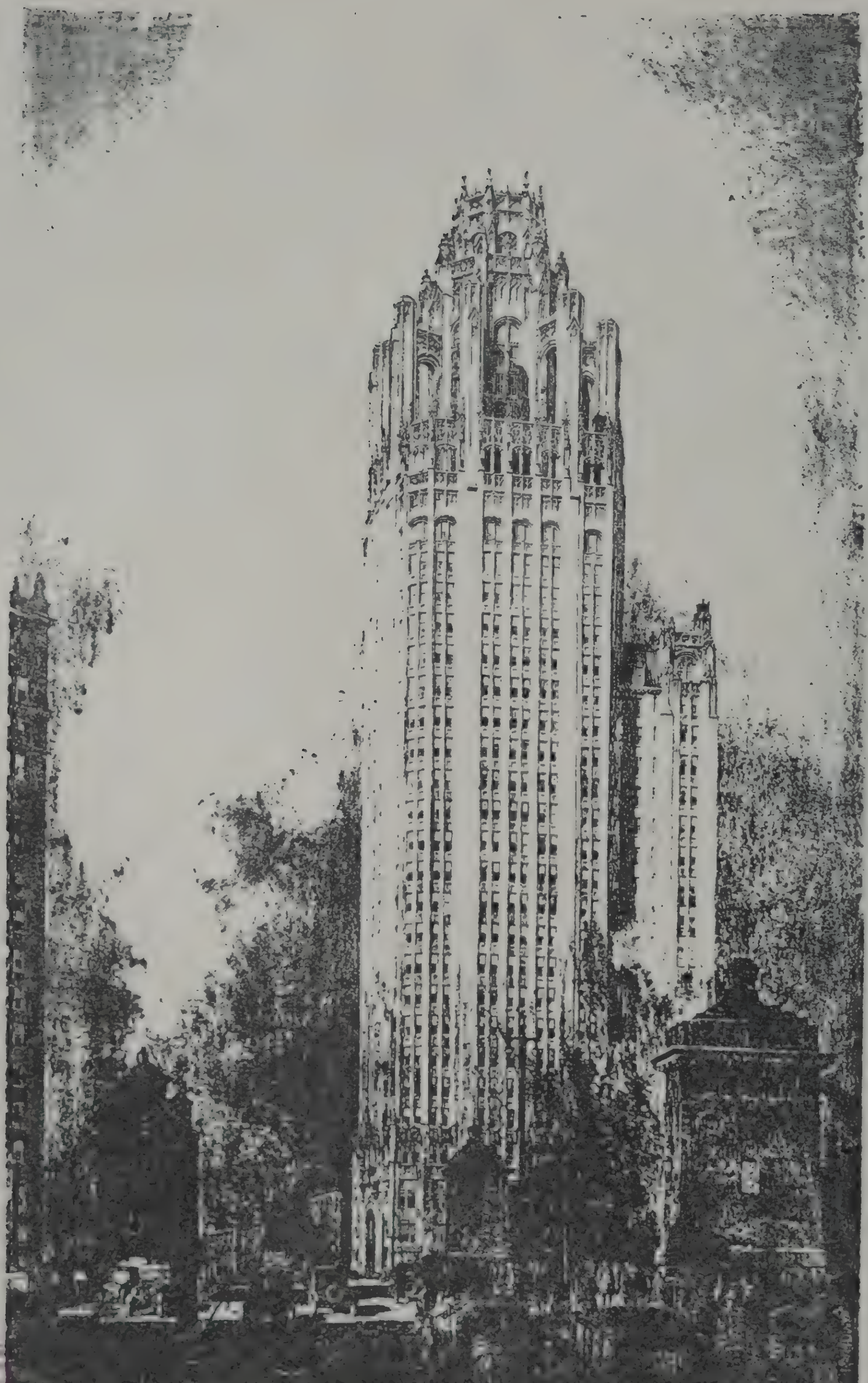

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The
ARCHITECTURAL
FORUM

VOLUME XLIII OCTOBER 1925 NUMBER 4

The Tribune Tower, Chicago

JOHN M. HOWELLS AND RAYMOND M. HOOD, Associated Architects

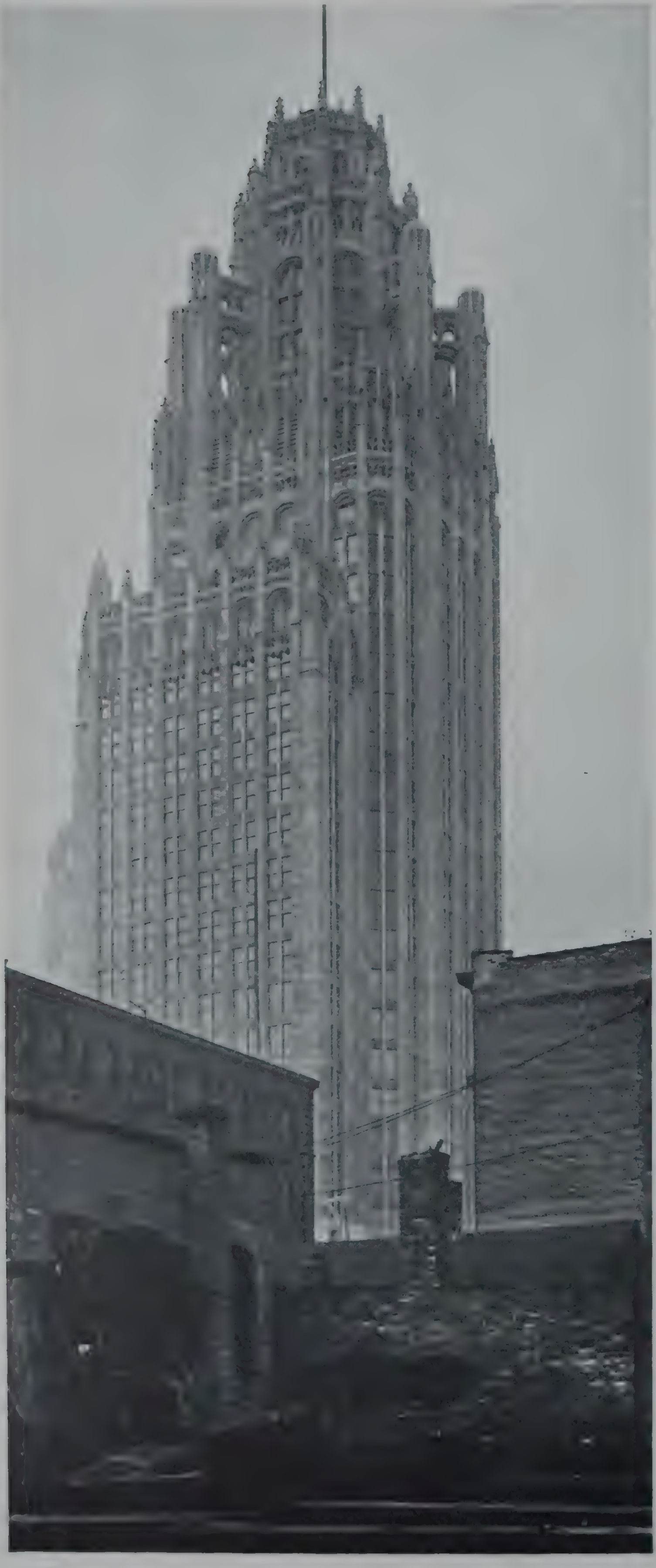
COMPLETION of the *Tribune* Tower in Chicago is an event of historic interest in the development of American architecture. Seldom has any artistic or architectural undertaking aroused greater or more universal interest than has the erection of this monument to one of the greatest journals in the world. The avowed purpose of that public spirited man, Col. Robert R. McCormick, to whose courage, foresight and generosity were largely due the conception and completion of this great undertaking, was the enhancement of the city's civic beauty, and the securing for Chicago of the most beautiful office building in the world. No architectural competition ever aroused greater interest than that announced in June, 1922, for the purpose of securing the finest architectural design obtainable for an office building of great height. This competition, which brought worldwide response because it was given worldwide publicity, was judged on December 3, 1922, by a distinguished Jury composed of architects, business men and journalists, and the prize was awarded to John M. Howells and Raymond M. Hood, associated architects, of New York. The artistic thought and the architectural ideas of 23 countries were represented in the remarkable group of drawings submitted in this competition. The architects of the world seemed to have formed a league, as it were, for the new and bold treatment of the theme of the skyscraper, a theme which has already made a marked impression on the recent development of American commercial architecture.

On the editorial page of *The Chicago Tribune* at the time the competition of the *Tribune* Tower was judged, there occurred this paragraph: "There is no precedent for this great contest, which has drawn upon the genius of the old world and the new. The competitive method is adopted in the case of public buildings with increasing frequency, but the new *Tribune* building will be the first privately owned edifice the design for which was awarded in a prize competition open to the world. There never has been such a contest, and it is very doubtful if there ever will be another. *The Tribune's* desire to erect the most beautiful and distinctive office building in the world, we believe, is now certain of fulfillment. The response to the offer of *The Tribune* was worthy of the occasion. Only three designs receive prizes, but there are a dozen or more any one of which if erected would, in our opinion, easily surpass any office building in Chicago and compare favorably with the highest achievements in this field of architecture anywhere in the world.

"Thus the competition has achieved in a noteworthy way not only *The Tribune's* purpose to procure for itself the most beautiful and distinctive building, but its secondary object, to stimulate architectural genius and bring forth works of beauty. It is hoped all the highly meritorious designs which have failed of receiving prizes will appeal to individuals and corporations intending to build. At least a score are much above the average of the best modern office building and would be a credit to any city or street in the world. It is *The Tribune's* hope that these splendid designs will be realized, as many as possible, in Chicago. The designs, collectively speaking, are the most important expression of modern utilitarian architecture ever presented for analysis and comparison. They may be considered an encyclopedia of the architecture of the skyscraper. Genius, exceptional talent, experience, ingenuity, and inspiration have contributed richly, and we are confident that the influence of the competition will be widespread and lasting for the good of architecture.

"The greatest architectural contest of history will result not only in achievement of what *The Tribune* announced as its desire, the most beautiful and distinctive office building in the world, but it will produce many other beautiful buildings. It will give Chicago an architectural gem of the first water, and add permanently to the resources of the modern architect a mine of new ideas and suggestions. This was the hope of *The Tribune*, and it has been fully realized. Thus is defined *The Tribune's* point of view.

The competition for the great monumental office building conducted by *The Chicago Tribune* under the auspices of the American Institute of Architects was a unique event in the history of American architecture. It was the first time that any corporation, civic, commercial or political, has recognized the importance of a commercial building as a force for



An Unusual View of the Tribune Tower

beauty and inspiration in the daily life of the average American. It is one of the few occasions in modern times where an architectural undertaking of paramount importance was conceived and carried out by one man, to whom this magnificent piece of architecture will be a lasting monument, quite as much as to the great journal whose name the building bears. As in the days of the doges of Venice and the princes of both Church and State, to whose individual initiative, ambition and glory were due the greatest architectural monuments of mediæval and Renaissance Europe, so in these modern times the outstanding event of the completion of the *Tribune* Tower cannot be recorded without paying a word of tribute and respect to the unfailing enthusiasm and untiring efforts of Col. McCormick, who gave to the winning architects his hearty coöperation and inspiring enthusiasm. Seldom is it the great good fortune of modern architects to have back of them in a great architectural undertaking such understanding, sympathy and constant encouragement .

In submitting his report as Chairman of the Jury of Award, Alfred Granger thus well expressed the spirit which animated not only the program of the competition but its award as well: "The program of the competition repeatedly states that the main desire on the part of *The Tribune* is to create a building of surpassing beauty. Never before has the 'quality of beauty' been recognized as of commercial value by an American business corporation, and yet all the greatest architecture of the past has been based upon beauty as its fundamental essential. To the trained architect the quality of beauty in plan and in the design as expressing the plan has always been the goal to be striven for. Let us hope that the results of *The Tribune's* competition may impress this essential upon the mind of American business so emphatically that the whole aspect of our American cities may be permanently influenced thereby.

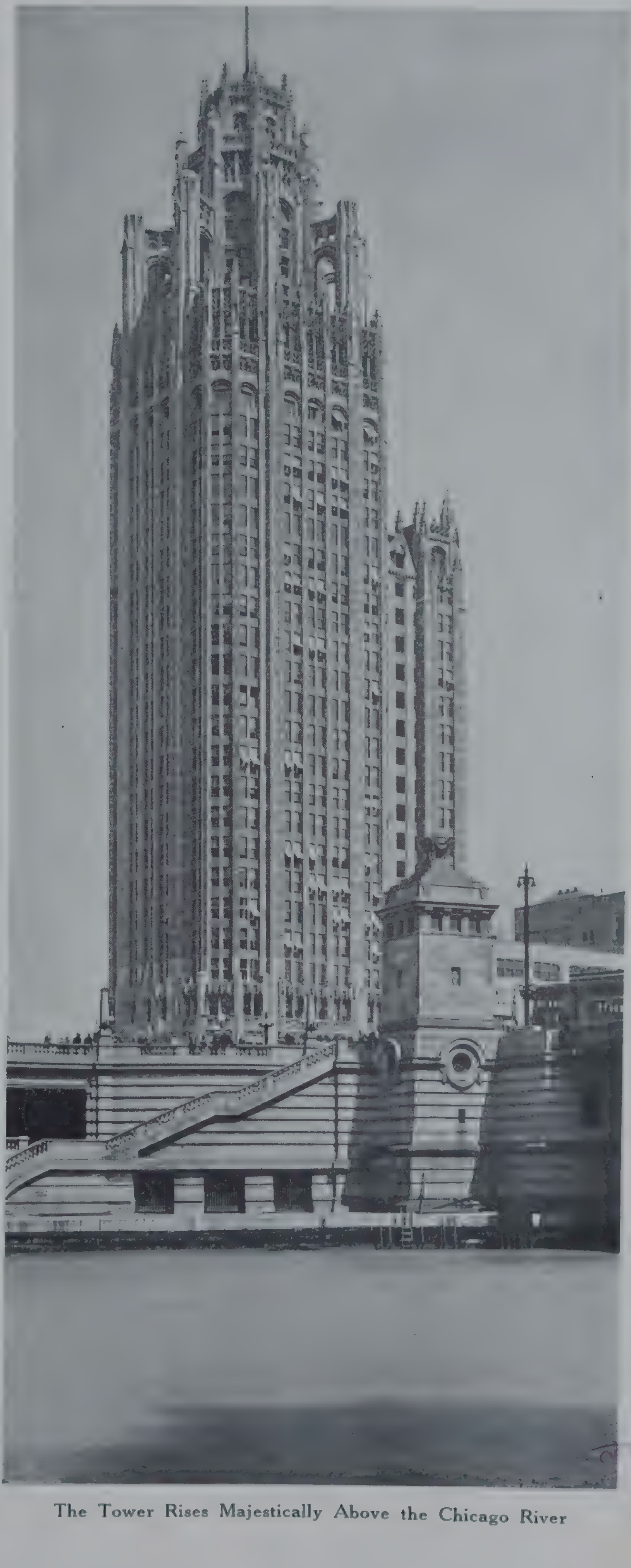
"One gratifying result of this world competition has been to establish the superiority of American design. Only one foreign design stands out as possessing surpassing merit, and this truly wonderful design did not come from France, Italy or England, the recognized centers of European culture, but from the little northern nation of Finland.

The two Finnish designs express a unity of composition, a grasping of the problem as a whole, which was not achieved by any of the other foreign competitors nor by any of the American designers, but this unity of composition and truthful expression of the plan have been qualities which have brought about the unanimous decision of the Jury.

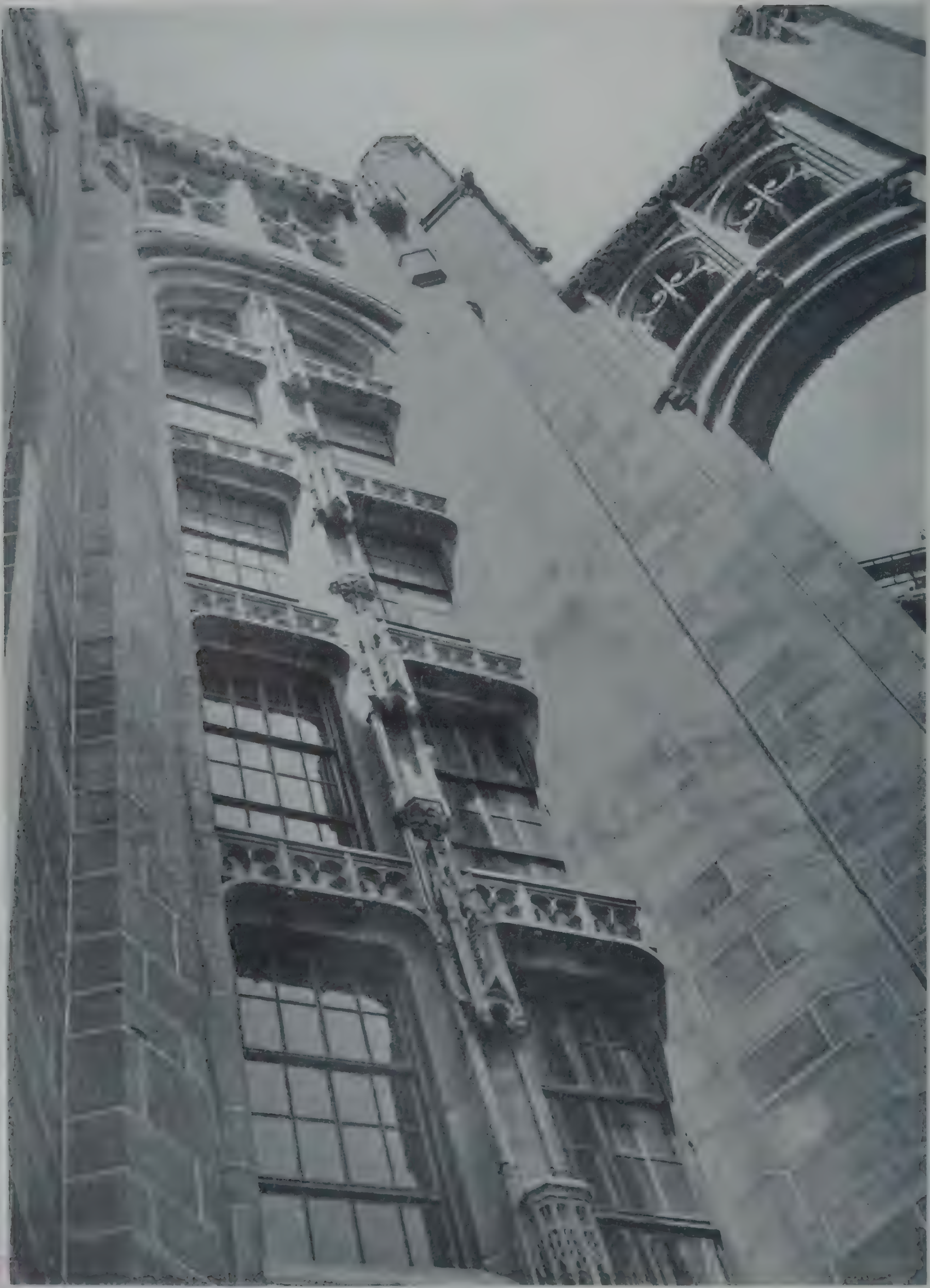
"When the winning design is executed, we feel that the judgment of the Jury will be more than justified and *The Tribune* amply compensated for what it has done to elevate commercial architecture into the realm of the fine arts and create for its own administrative headquarters the most beautiful office building in the world, a fitting monument to the founders of the pioneer newspaper of the great middle West"; all of which has come to pass.

In speaking of the design as submitted in the competition, the successful architects, Mr. Howells and Mr. Hood, gave this brief description: "The design is, before everything else, an expression of *The Tribune*. The structure is carried to its full height as a square on the Michigan Avenue front only, thus always giving the same impression from wherever seen, and showing the same from all points as the *Tribune* landmark. We feel that in this design we have produced a unit. It is not a tower or top, placed on a building; it is all one building. It climbs into the air naturally, carrying up its main structural lines, and binding them together with a high open parapet. Our disposition of the main structural piers on the exterior has been adopted to give the full utilization of the corner light in the offices, and the view up and down the Avenue.

"Our desire has been not so much to secure an archæological expression of any particular style as to express in the exterior the essentially American problem of skyscraper construction, with its continued vertical lines and its inserted horizontals. It is only carrying forward to a final expression what many of us architects have tried already under more or less hampering conditions in various cities. We have wished to make this landmark the study of a beautiful and vigorous form,—not of an extraordinary form. The area of the cross section of the central motif of the top plus the area of its several supports is 3,360 square feet, and thus within the 3,600 square feet allowed, the frontage of the



The Tower Rises Majestically Above the Chicago River



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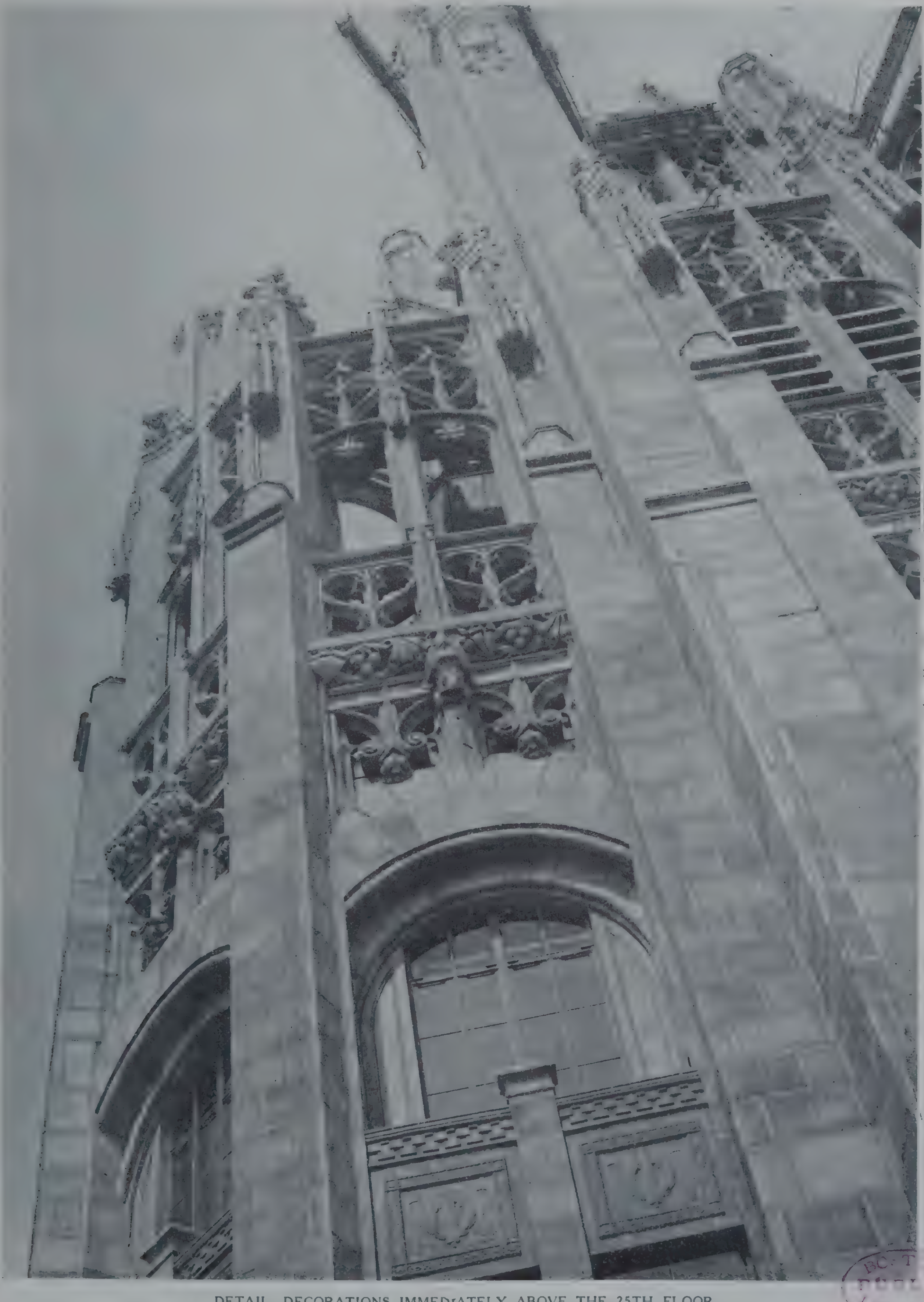

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TRIBUNE TOWER, CHICAGO

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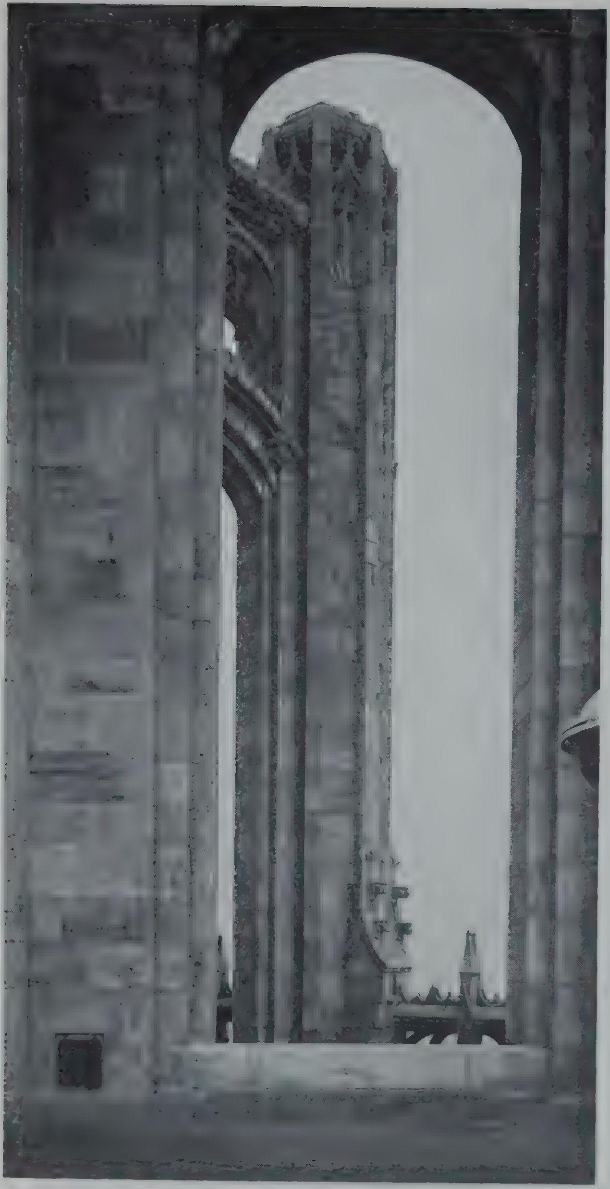


Flying Buttresses Unite the Exterior Walls of the Main Building with the Center Finial of the Tower

top on the street being also within the building law.

"It is perhaps not necessary to call attention to the fact that the upper part of the building has been designed not only for its own outline and composition, but for the possibilities of night illumination."

The plainness of the walls of the first three stories makes it possible to introduce consistently the large show windows on the street level as well as the spacious openings of the second floor. The main entrance to the building is adequately emphasized by a great recessed opening, the carved ornamentation of which suggests the portal of some great cathedral. This great opening extends well up into the third story of the building. The use of two entrance doors instead of one or three is a characteristic of Gothic precedent, as is also the beautiful carved detail of the stone tracery screen which fills in the upper part of the arched opening above the doors. The broad carved band decorating the exterior of this entrance archway suggests a type of detail popular in the Elizabethan period. In fact the character of all the Gothic detail used throughout the building suggests English inspiration. Over the entrance arch a series of richly carved niches with canopies above forms a continuous decorative note around the three street facades. From these decorations start the vertical piers which rise to the full height of the building. These piers have sufficient depth to create strong shadow lines, which emphasizes their verticular importance in the design. At the 24th floor arches terminate the divisions formed by these piers, above which richly carved Gothic decorations form a sort of choir screen of such magnitude as to count as a fitting decoration for the top of the main part of the building. Much of the unusual beauty as well as simplicity of the *Tribune* Tower is attributable to the strong, unbroken lines of these piers, which divide each facade of the building into corner bays and wall bays. Each wall bay shows six windows to each floor. This same number of windows is shown again in the corner bays, which are semi-hexagonal in plan. This treatment of the corners, which gives a note of definite strength to the four corners of the main structure and makes possible the introduction of strong dividing vertical piers between the corner bays and the wall bays, is one of the many successful architectural features of the building. These piers above the 24th floor are carried up as the supports for colossal flying buttresses, which form one of the dominant decorative features of the architecture of the structure. These great buttresses, nearly 40 feet in height, apparently receive the thrust of the great center tower, with its rich Gothic detail in the form of tracery window openings, parapets, and richly ornamented turrets, capping the towering piers with superb architectural effect. The entire structure soars magnificently into space.

Such a descriptive analysis of the *Tribune* Tower as has here been attempted falls far short of giving any adequate impression of the unusual symmetry and beauty which it possesses. The masterful way in which scale and proportion are handled cannot be overlooked. The logical manner in which the rich Gothic decorations crowning the building are made an integral and structural part of the entire design is unsurpassed in architectural history. The height and mass of the great central octagonal tower with its eight flying buttresses are in perfect proportion as well as consistent and in unity with the lines and mass of the main shaft of the tower. The 20-story wing of the Tower building, directly back of it, gives additional strength to the main structure.

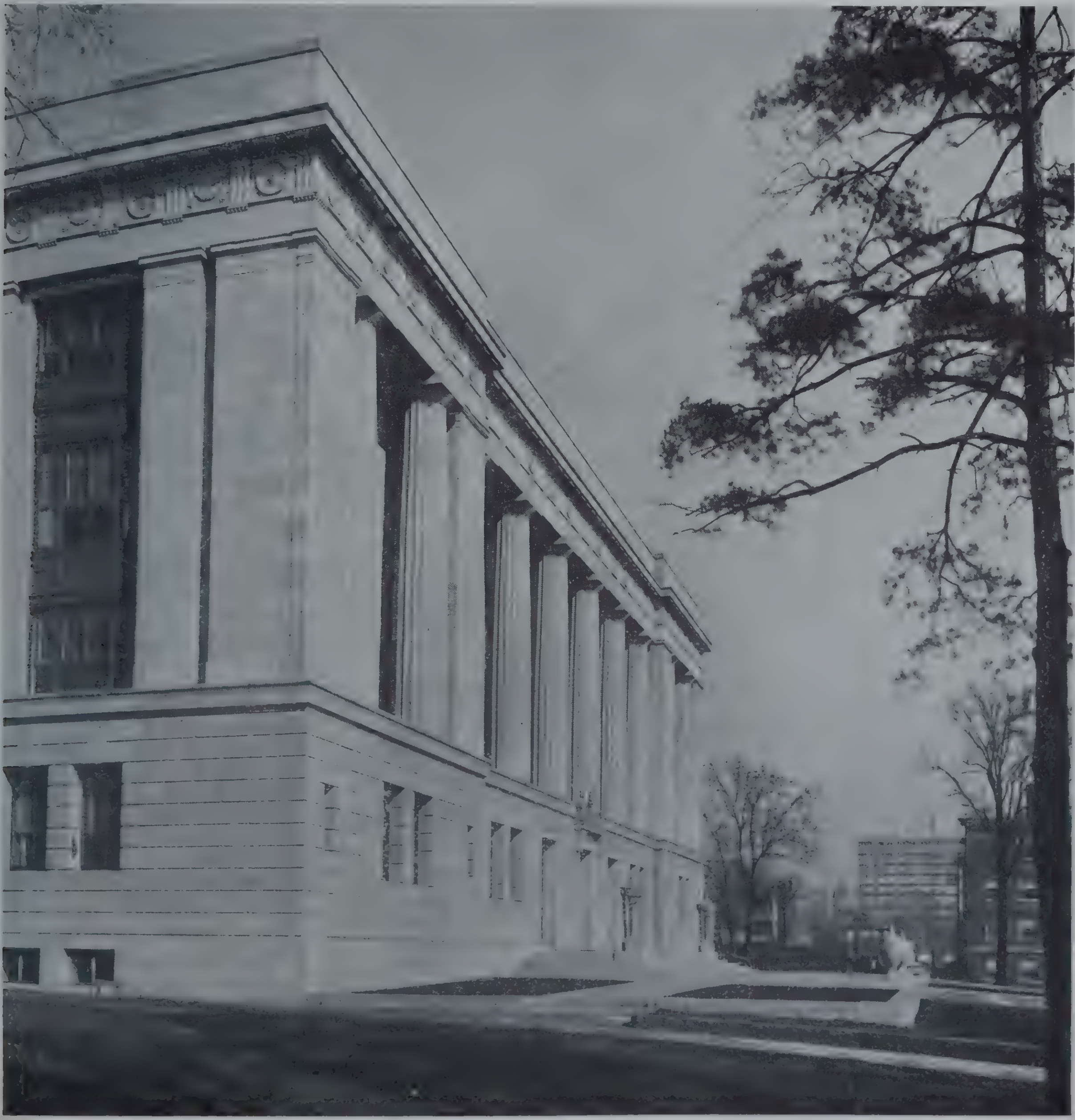
Illustrations of the *Tribune* Tower merely suggest the sense of beauty and architectural perfection which the building itself inspires. To be fully appreciated it must be seen. Chicago is indeed fortunate in witnessing the realization and successful completion of this great architectural undertaking, the prime motive for which was the enhancement of civic beauty and the securing for Chicago the most beautiful office building genius could conceive.

Kansas City Life Insurance Company Building

WIGHT & WIGHT, Architects

A STRONG indication of the steady progress in architectural taste is to be found in the fact that throughout the country large organizations which serve the general public, such as banks, railroads, newspapers and insurance companies, are constructing for their own use buildings which are real monuments of beauty, buildings in which the opportunity is given the architect to "waste" space in order to achieve the scale necessary to secure a truly monumental character. Whereas a few years ago a "monumental" structure was almost surely a public building, serving the municipality or state, and the architect was restricted to these publicly owned buildings or to an occasional mausoleum for his expression of the purely classical, today the field has been broadened to afford greater scope.

The new building for the Kansas City Life Insurance Company, recently completed from the designs of Wight & Wight, is an example of an almost prodigal use of resources to create a dignified and impressive setting for the home offices of a large organization. There are certain considerations in the actual workings of an insurance company which make possible the design of a classic building. In the first place, it has been determined that it is more convenient in the case of such offices to have the working space as far as possible on single floor areas, so that the natural tendency is to erect a



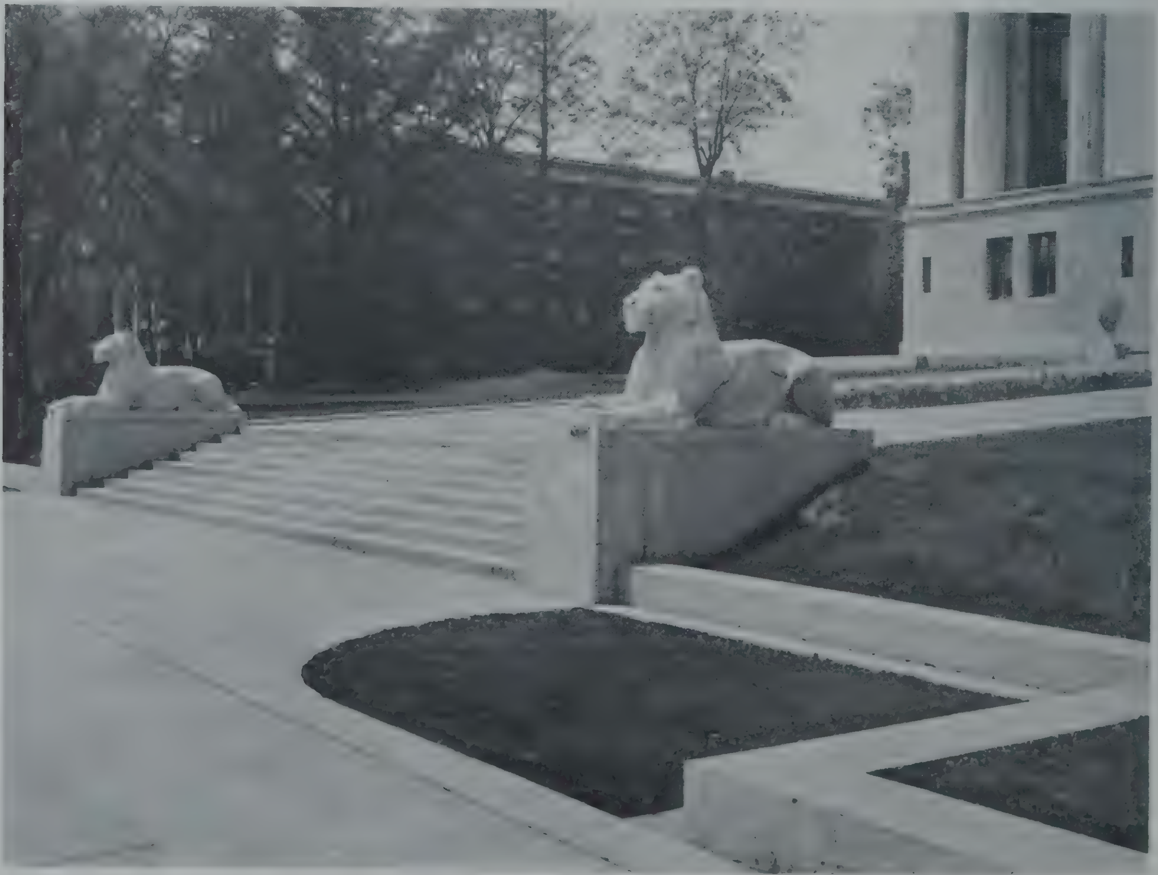
Classic Scale and Refinement of Detail Give Dignity to the Elevation building which is low and spreading rather than the typical tall, compact office building. Accordingly, there is the architectural possibility of using classic motifs in their entirety rather than merely for the base and cap of a shaft which is purely modern, and which can have very little relation to its complementary members. Here the architects have taken advantage of this opportunity to use the Greek Doric order, and have produced a balanced composition of great dignity. The order has been placed on a high rusticated stylobate, which encloses the first story; between the columns the upper floors are marked by bronze spandrels. The doors are also of bronze, backed up with glass. With the exception of this work, the entire exterior is of limestone.

In addition to the possibility of using a comparatively low building, the business of an insurance company's office, where no provision is to be made for public renting space, also permits the placing of the building outside the usual business district, in this way obtaining a setting which would be impossible in the crowded downtown district of a city. In this instance the owners acquired a large plot in a residential district, a plot so large that the building has a proper setting on all sides, as well as ample space between the building and the street to make possible an impressive flight of steps for the main entrance. Such a piece of property provides ample space for additions as they may become necessary.

The main entrance leads through a generous hall or lobby directly into the public space, and on either side by corridors to reception rooms, and by elevators to the private offices of the various officials on the floors above. The public space or lobby has been treated in the generous and monumental manner of our more recent banks, being carried not only through the first and second floors, but including a clerestory which gives ample light to this portion.

The second floor is devoted entirely to the use of the medical department, while the two upper floors provide office space for the other departments, including the directors' room and the president's office, both of which are elaborately finished with paneled walls and coffered ceilings. The basement, in addition to providing for the usual mechanical equipment, gives additional space for storage and filing vaults. Two entrances for employes have been placed on either side and at the rear of the building, and the stairs at these entrances also give inter-communication between the departments on the upper floors.

It is well that great financial organizations such as this are realizing the real value of a beautiful architectural setting for their activities. One can readily appreciate the interest that must be aroused on the part of the public when it sees this distinctive building with its pure classic beauty, unusually well placed on spacious grounds. And, further, upon entering the building, the solid dignity of the public portion, with its impressive size, must surely be taken as an indication of the character of the company.



Broad Steps Flanked by Monumental Lions Provide a Formal Approach

Prize Winning Drawings of the Ideal Cellar Competition

ON these pages will be found a list of the architectural designers whose drawings, entered in the Ideal Cellar Competition, were awarded prizes and honorable mentions. The eight prize-winning drawings are shown, together with plans, and the report of the jury is given.

The Ideal Cellar Competition, conducted by THE ARCHITECTURAL FORUM for the American Radiator Company, marked the first step in establishing in the home building field a realization of a new economic factor of importance to home builders, real estate developers and architects. When the competition announcement was sent out, it was said that its purpose was to place before the architectural profession the possibilities of cellar planning and design, which might result in suggestions indicating practical ways of arranging cellar space to secure increased efficiency and capital valuation for this heretofore neglected part of a residence. Every architect and home builder realizes that in estimating the cost of a new dwelling, the cubic foot measurement is applied to the entire cellar with a structural cost factor equal to that of any other part of the building. Thus the owner's investment in the cellar is proportionately equal to that in the principal rooms, but the return upon that investment, in realty valuation, in rental valuation, and in living comfort is entirely disproportionate,—small because a fixed habit, due to conditions of the past, overlooks the possibilities of developing the cellar in full measure as useful or livable space. The solutions of this problem, as obtained from the architectural profession in the form of competition drawings, are extremely interesting and show a broad scope of imagination in attacking a problem of a new nature, not wanting in suggestion.

These five well known architects were chosen by THE ARCHITECTURAL FORUM to act as a jury:

C. HOWARD CRANE, Detroit.
RAYMOND M. HOOD, New York.
HORACE B. MANN, New York.
PHILIP RICHARDSON, Boston.
ERNEST J. RUSSELL, St. Louis.

On Thursday, September 17, this jury met at the Westchester-Biltmore Country Club and spent the day in a careful examination of all drawings, awarding the sum of $4,200 in 29 prizes and mentions as listed on another page. This report of the jury's findings was written by Mr. Mann for THE FORUM:

"The problem which faced the jury in judging the drawings submitted in the Ideal Cellar Competition

Awarding Prizes in the Ideal Cellar Competition

The members of the jury were (standing, left to right) Raymond M. Hood, New York; C. Howard Crane, Detroit; (sitting, left to right) Philip Richardson, Boston; Ernest J. Russell, St. Louis; Horace B. Mann, New York was somewhat complex in its nature, first, because of the unusual nature of the competition, for which no precedent had ever been established, and, second, because of the peculiar combination of practical and æsthetic requirements. The first general impression when the drawings were placed before the jury was that most of the plans were arranged to provide usable space without detracting from the utilitarian uses necessary in every cellar; in fact, that in most of the plans the practical efficiency of the cellar was increased, while a careful interrelationship of the various rooms provided space and operating economy in this too often unstudied portion of a house.

"The attitude of the jury itself toward this idea of encouraging the better planning of residential cellars was highly favorable, and it was felt that this competition possessed an interesting economic significance in that it might logically prove the beginning of a movement throughout the home building field toward a better understanding of the increased value of houses, in the planning of which more attention is given to utilizing the cellar.

"Class A of this competition represented cellars planned for houses located on level ground, and all of the prize plans of this class as shown in these pages are covered by this description.

"The First Prize drawing in Class A, by Chester Eugene Dean, of Kansas City, showed in the first place a desirable simplicity from a structural point of view, avoiding complicated parts in relation to the structure above the cellar. It also showed a fertility of imagination in making use of the thick walls and high windows of the cellar. Advantage was taken of the natural features of the interior construction of the cellar with comparatively little embellishment. The heating apparatus indicated was for either oil or coal.

"The Second Prize in Class A was awarded to William F. Kussin and Thomas F. McDonough of Boston, and again represented good planning and practicability and showed use of fertile imagination. The extreme simplicity of the plan, together with the position given to the heating apparatus, seemed to solve this problem in an excellent manner. The type selected for the principal room and its interior treatment was thoroughly practical and not overdone in decoration. Each part of the cellar plan is well related to the others. Here no effort was made to conceal the heating plant, but it was located in a convenient position, and the interior treatment was developed with the heat machine as an important and yet unobjectionable part of the design.

"The Third Prize in Class A was awarded to Hiram A. Salisbury, of Omaha. While being less pretentious than the other two, it established a very interesting use for the principal room. The arrangements for hot water, ash disposal, storage of fireplace wood and other similar practical features were handled in an unusually successful manner.

"The Fourth Prize in Class A was awarded to H. E. Willmot, of Detroit. This plan was arranged in a practical manner and brought out some interesting ideas in the interior treatment of these rooms, as shown by the detail of fireplace and inglenook. The design was unique in showing an open terrace, level with the cellar.

"Class B involves the planning of a cellar located in a house on sloping ground, and offers most interesting possibilities from the designer's point of view, as this gives an opportunity to incorporate the cellar as a component in the exterior treatment and also to make use of entrance doors, windows, terraces and other features which would not be possible under Class A requirements.

"The First Prize in Class B was awarded to F. Pendlebury of New York, and again the award was based on its practicability from a structural point of view and on the simplicity of the cellar arrangement and interior treatment.

"The Second Prize in Class B was awarded to William F. Kussin and Thomas F. McDonough, of Boston, and indicates a very unusual and interesting arrangement of the main living room, two stories high and utilizing ordinarily wasted cellar space, as a definite part of the house plan itself. A study of the plan will show the entrance on a balcony, with steps leading down into the living room, and with the heater occupying a very prominent position in connection with this main room and yet treated in an attractive manner.

"The drawing which was awarded Third Prize in Class B, submitted by Anthony Wuchterl of Milwaukee, was charmingly presented in simple but effective rendering and indicated a thoroughly practical layout from structural and utility points of view. This plan is less pretentious than many submitted in this competition, but it provides a definite element of attractiveness to a part of the house usually overlooked in planning.

Grand Prize, $1,000

William F. Kussin, Thomas F. McDonough, 11 Beacon St., Boston.

Class A

First Prize, $500, to Chester Eugene Dean, 417-16 Reliance Bldg., Kansas City.
Second Prize, $300, William F. Kussin, Thomas F. McDonough, 11 Beacon St., Boston.
Third Prize, $200. Hiram A. Salisbury, 1037 Omaha Natl. Bank Bldg., Omaha.
Fourth Prize, $100. H. E. Willmot, Architects Bldg., 415 Brainard St., Detroit.

Mentions ($50 Each)

Alfred Kastner, Harry Bosworth, 2 W. 47th St., New York.
Bennett J. Applegate, 6620 Clemens Ave.; Arthur S. Martsolf, 7064 Clayton Road, St. Louis.
Paul S. Hodgson, 504 Eccles Bldg., Ogden, Utah.
Chas. H. Bruegger, 5426 Murdock St., St. Louis, Mo.
John C. French, Jr., 81 Edge Hill Road, East Braintree, Mass.
Frank Eugene Doff, 282 Ryerson St., Brooklyn.
Emile Monier, 16 Webb Ave., River Edge, N. J.
Arthur R. Carpenter, P. O. Box 527, Chehalis, Wash.
Frederick J. Griffin, 301 Montclair Ave., Newark.
T. P. Logergren, 64 W. Randolph St., Chicago.

Class B

First Prize, $500. F. Pendlebury, care of McKim, Mead & White, 101 Park Ave., New York.
Second Prize, $300. William F. Kussin, Thomas F. McDonough, 11 Beacon St., Boston.
Third Prize, $200. Anthony Wuchterl, 304 Colby Abbot Bldg., Milwaukee.
Fourth Prize, $100. Alfred Kastner, Harry Bosworth, 2 W. 47th St., New York.

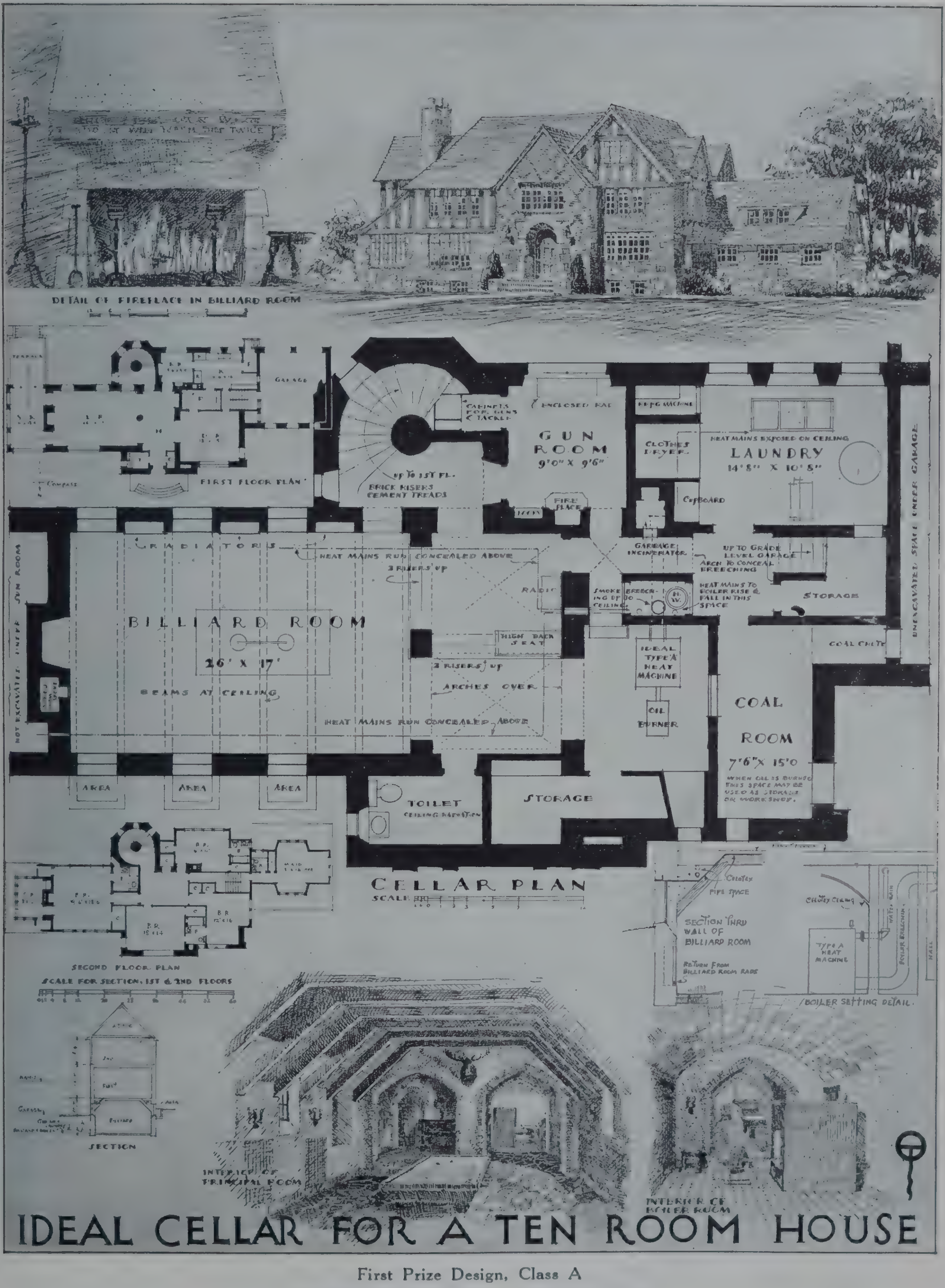
Mentions ($50 Each)

Arthur L. Martsolf, 7064 Clayton Road; Bennet J. Applegate, 6620 Clemens Ave., St. Louis.
Edgar W. Buerger, Edwin Larson, 692 Endicott Bldg., St. Paul.
Edward J. Thole, 707 Furniture Bldg., Evansville, Ind.
John Blair Muller, 254 Park Ave., New York.
Paul Hermann, 4610 Magnolia Ave., Chicago.
Emile Monier, 16 Webb Ave., River Edge, N. J.
Fred'k J. Griffin, 301 Montclair Ave., Newark.
E. Walker Burkhardt, 1000 President St., Brooklyn.
Max Tuller, 1205 Santa Clara Ave., Alameda, Cal.
H. S. Garns, 1216-17 Fletcher Trust Bldg., Indianapolis.

"The interesting feature of the drawing by Alfred Kastner and Harry Bosworth, of New York, which was awarded Fourth Prize in Class B, was the successful segregation of the living and utility sections of the cellar. Access is provided to a large 'den,' either through a stair hall within the building or through an outside porch. The whole plan represents an interesting solution of the problem presented by a hillside dwelling, taking full advantage of conditions.

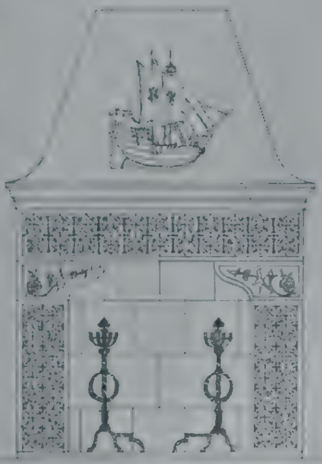
"The awarding of the Grand Prize to William F. Kussin and Thomas F. McDonough was comparatively simple, because the drawings entered by these designers had been awarded second prizes in both Classes A and B. Thus the selection became automatic, since the total number of points for them was considerably higher than that of any other competitor for the Grand Prize of the competition.

"The prize-winning drawings were considered by the jury to be well presented and thoroughly practical, offering many suggestions and solutions of cellar problems for those interested in replanning existing cellar spaces or in the designing of new dwellings. An interesting feature was the wide variety of suggestions for useful rooms in the cellar."

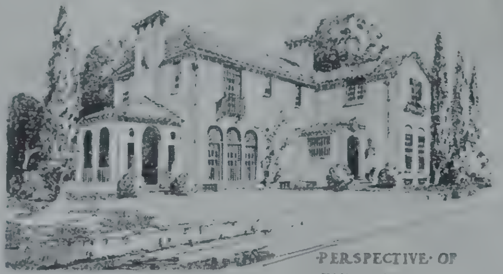

DETAIL OF FIREPLACE IN BILLIARD ROOM
FIRST FLOOR PLAN
GARAGE
COMPASS
CABINETS FOR GUNS & TACKLE
ENCLOSED RAC
GUN ROOM
9'0" X 9'6"
FIRE PLACE
UP TO 1ST FL.
BRICK RISERS CEMENT TREADS
IRONING MACHINE
CLOTHES DRYER
HEAT MAINS EXPOSED ON CEILING
LAUNDRY
14'8" X 10'8"
CUPBOARD
GARBAGE INCINERATOR
UP TO GRADE LEVEL GARAGE
ARCH TO CONCEAL BREECHING
SMOKE BREECHING UP TO CEILING
H.W.
HEAT MAINS TO BOILER RISE & FALL IN THIS SPACE
STORAGE
UNEXCAVATED SPACE UNDER GARAGE
COAL CHUTE
RADIATORS
HEAT MAINS RUN CONCEALED ABOVE
3 RISERS UP
RADIC
BILLIARD ROOM
26' X 17'
BEAMS AT CEILING
HIGH BACK SEAT
2 RISERS UP
ARCHES OVER
HEAT MAINS RUN CONCEALED ABOVE
NOT EXCAVATED UNDER SUN ROOM
IDEAL TYPE 'A' HEAT MACHINE
OIL BURNER
COAL ROOM
7'6" X 15'0
WHEN OIL IS BURNED THIS SPACE MAY BE USED AS STORAGE OR WORKSHOP.
AREA
AREA
AREA
TOILET
CEILING RADIATION
STORAGE
CELLAR PLAN
SCALE
SECOND FLOOR PLAN
SCALE FOR SECTION, 1ST & 2ND FLOORS
SECTION
SECTION THRU WALL OF BILLIARD ROOM
Celotex
PIPE SPACE
RETURN FROM BILLIARD ROOM RADS
Celotex Ceiling
TYPE A HEAT MACHINE
BOILER BREECHING
BOILER SETTING DETAIL.
INTERIOR OF PRINCIPAL ROOM
INTERIOR OF BOILER ROOM

IDEAL CELLAR FOR A TEN ROOM HOUSE

First Prize Design, Class A
Submitted by Chester Eugene Dean, Kansas City



DETAIL OF MANTEL



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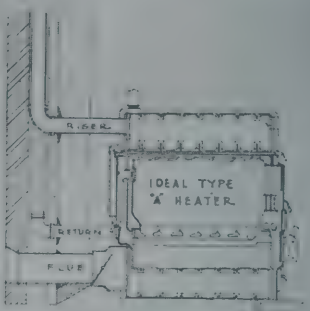
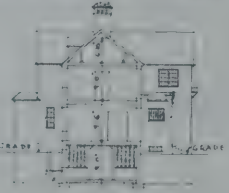
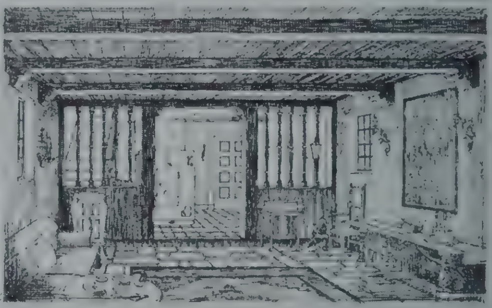


·SECTION· ·THRU·HEATER·

ROTARY ASH RECEIVER



SECTION



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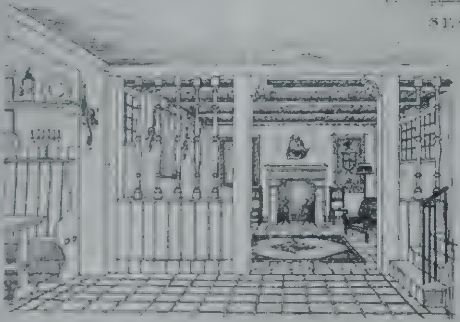

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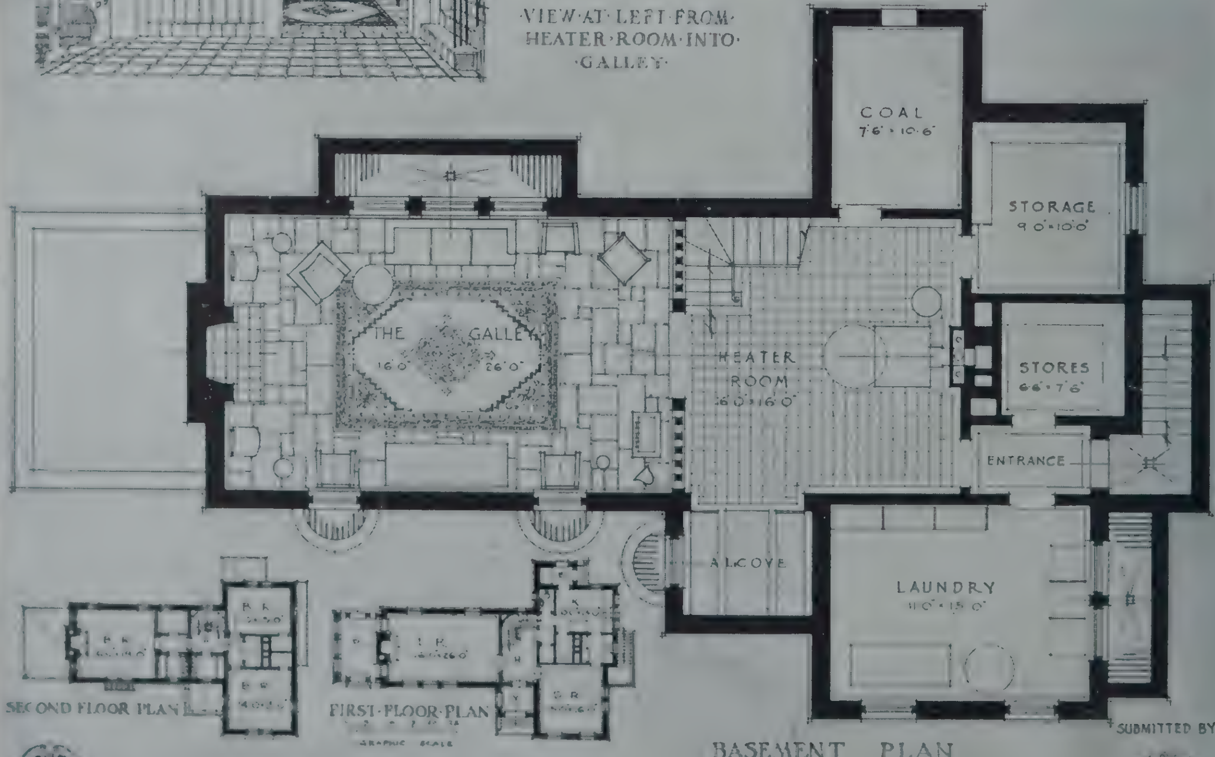


SECOND FLOOR PLAN

FIRST·FLOOR·PLAN

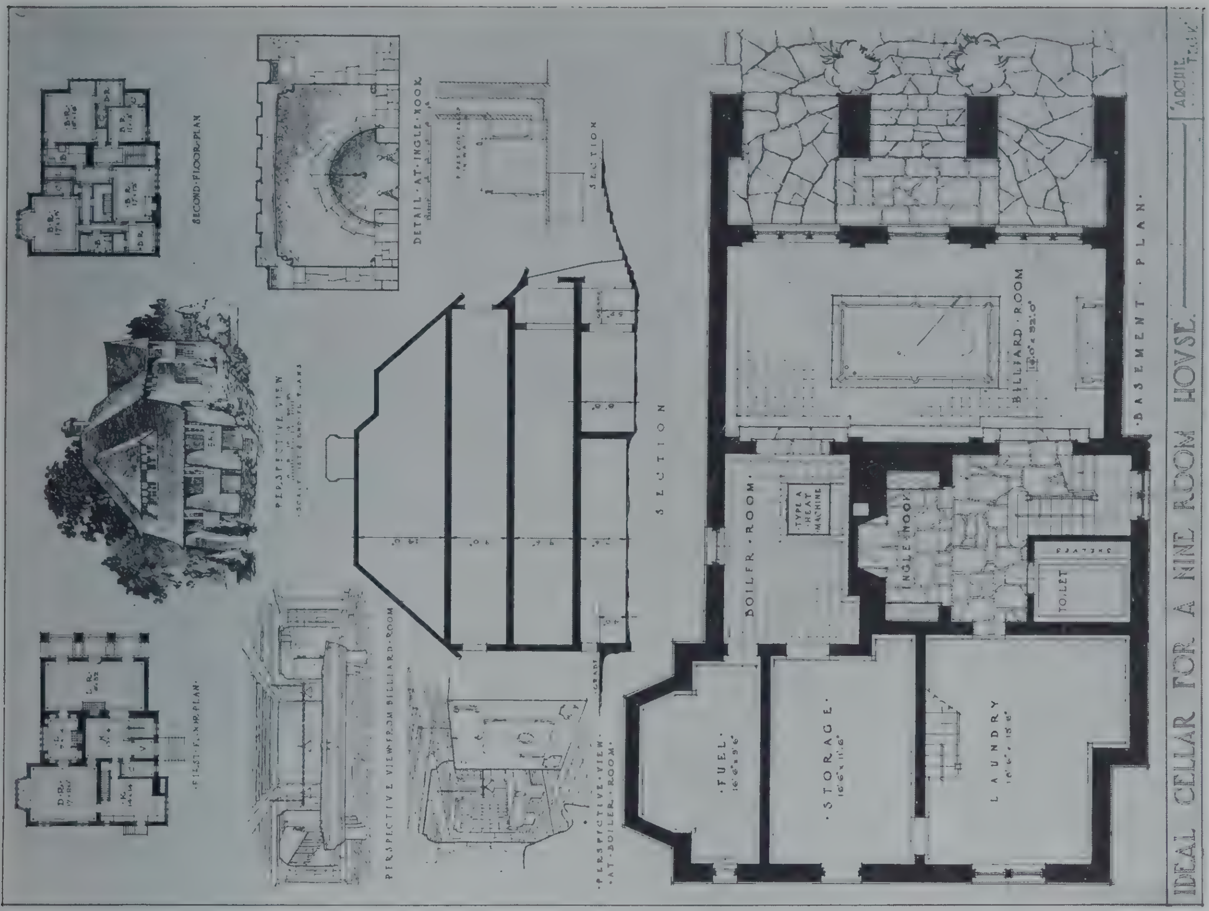
BASEMENT PLAN

SUBMITTED BY

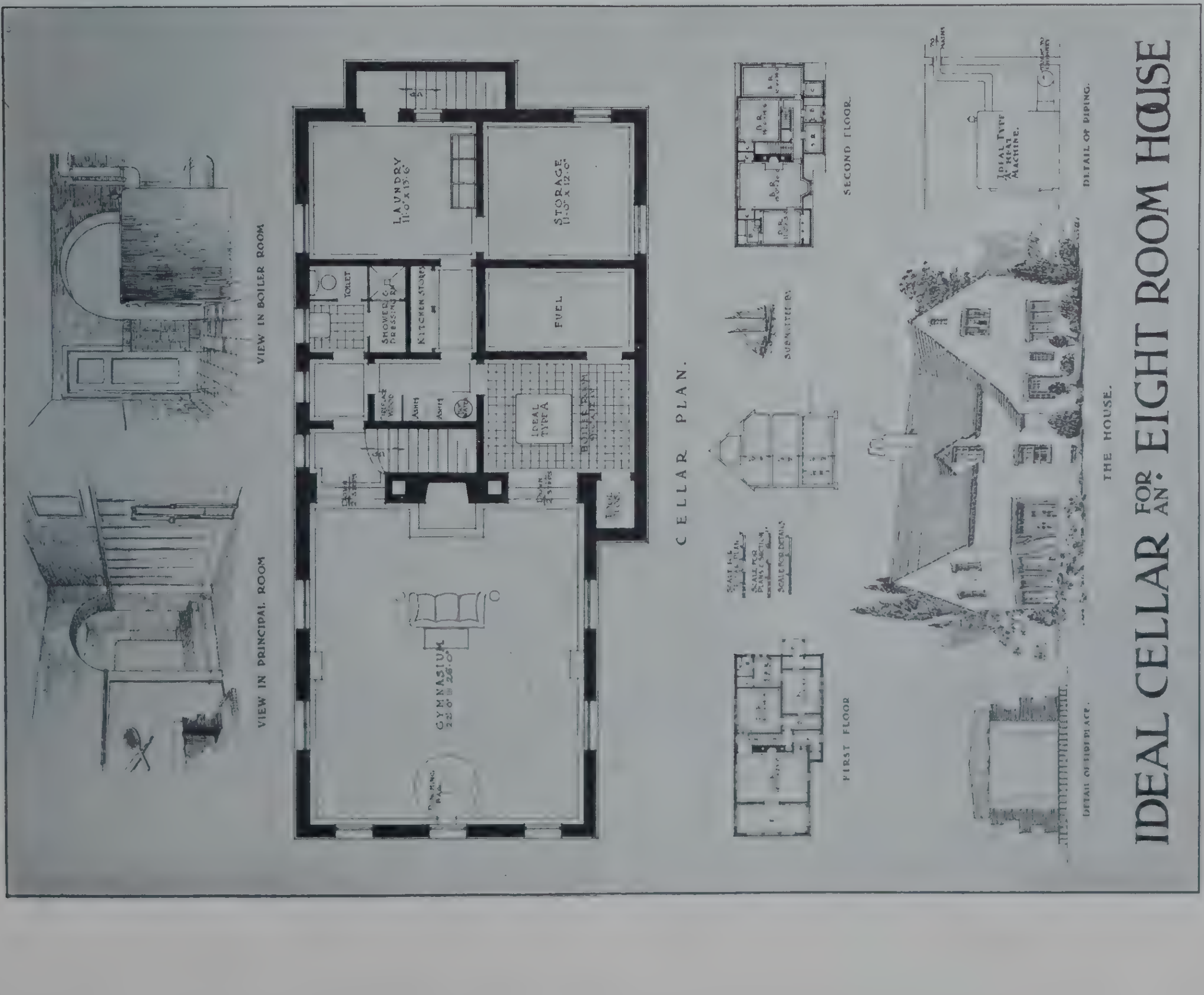
IDEAL·CELLAR·*for* a·NINE·ROOM·HOUSE

Grand Prize and Second Prize Design, Class A

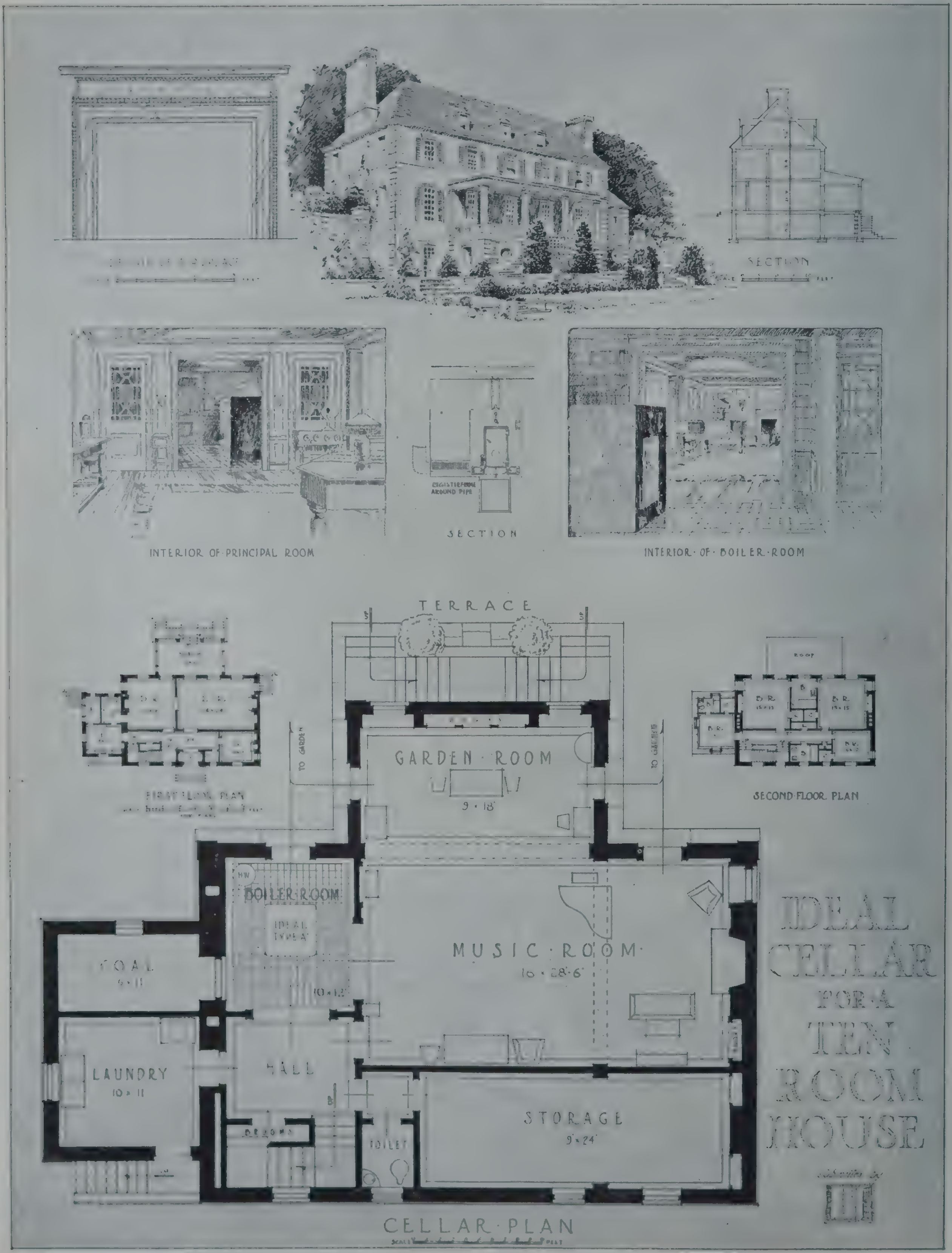
Submitted by William F. Kussin and Thomas F. McDonough, Boston



Fourth Prize Design, Class A
Submitted by H. E. Willmot, Detroit

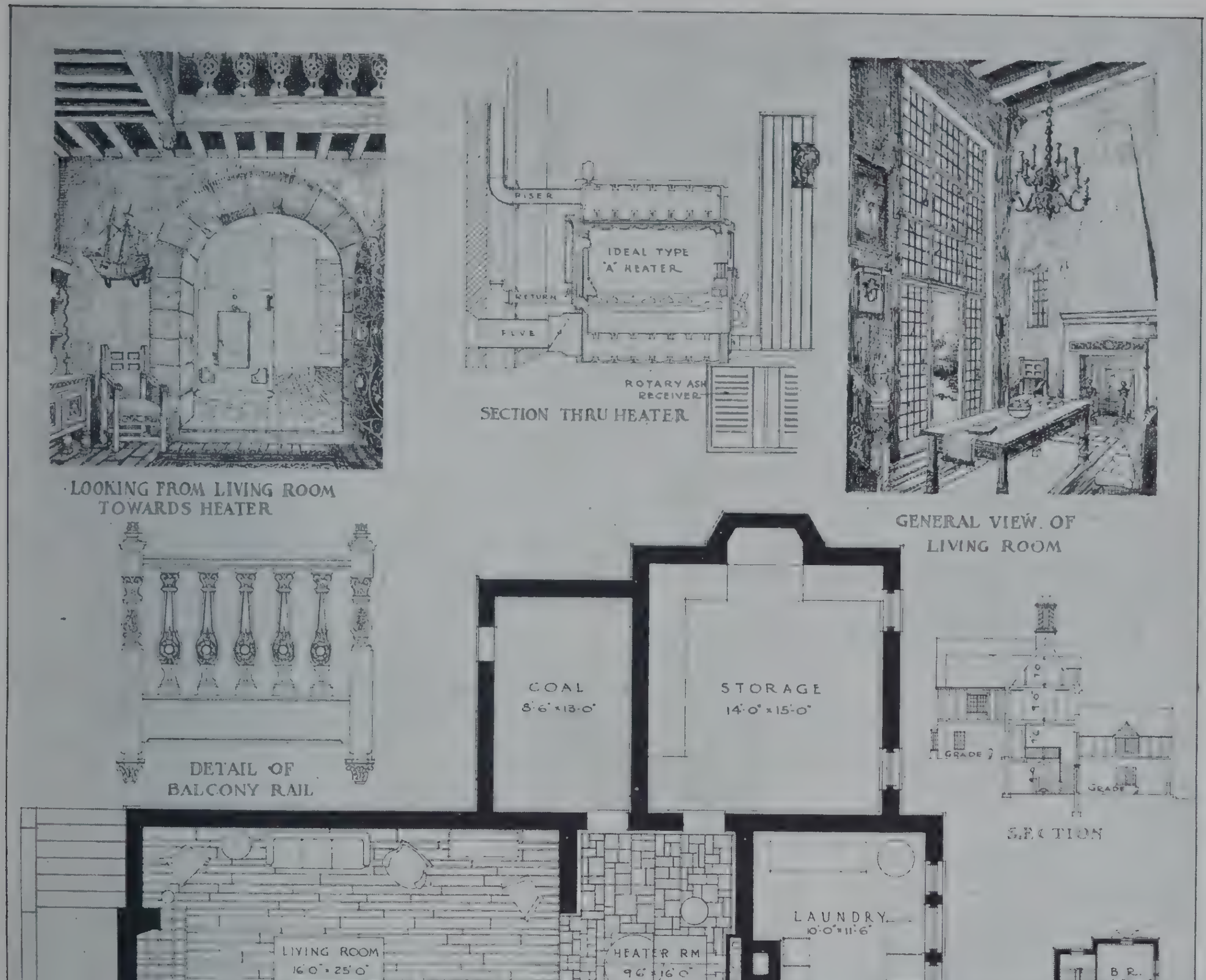


Third Prize Design, Class A
Submitted by Hiram A. Salisbury, Omaha



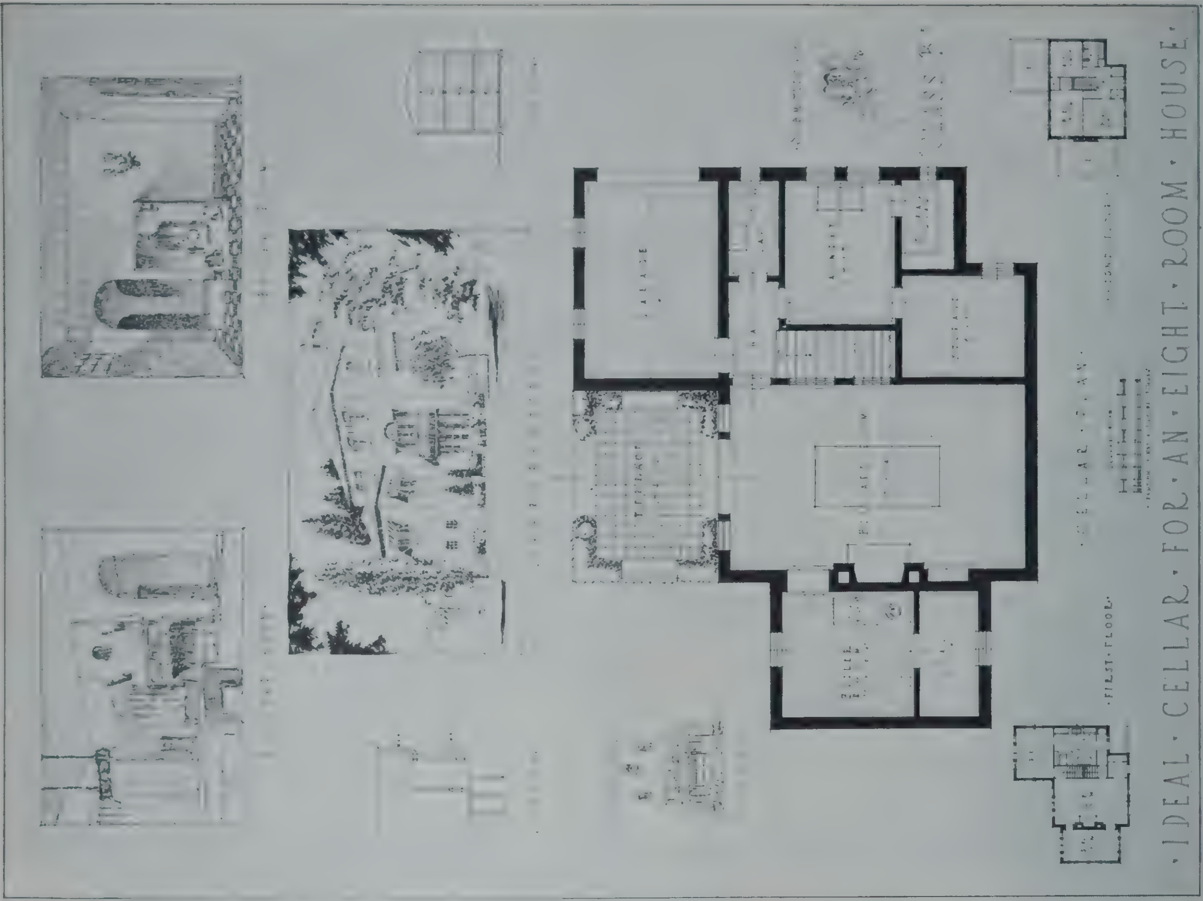
First Prize Design, Class B

Submitted by F. Pendlebury, New York

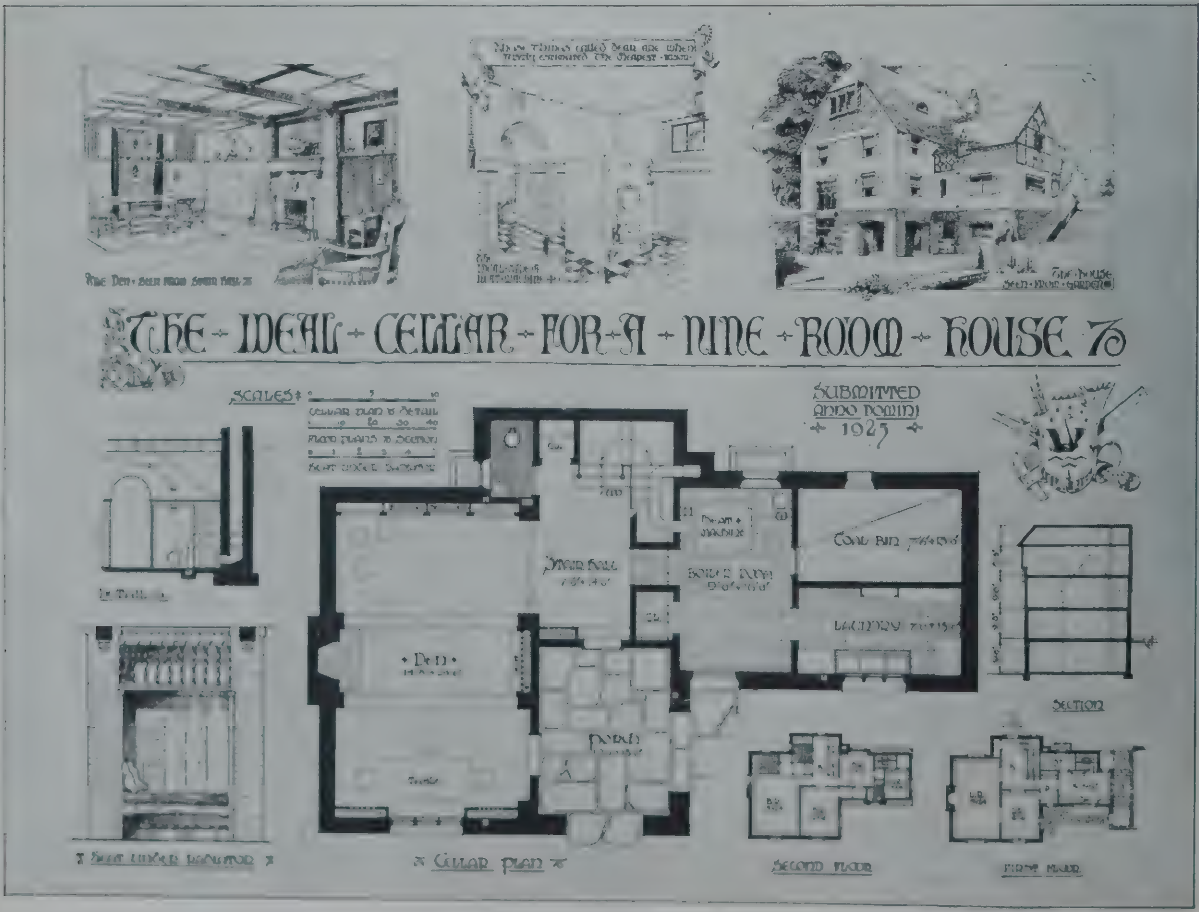


Grand Prize and Second Prize Design, Class B

Submitted by William F. Kussin and Thomas F. McDonough, Boston



Third Prize Design, Class B
Submitted by Anthony Wuchterl, Milwaukee


THE IDEAL CELLAR FOR A NINE ROOM HOUSE
The Den · Seen from Stair Hall
Many things called dear are when truly estimated the cheapest · Ruskin
The House Seen from Garden
SCALES
Cellar plan & detail
Floor plans & section
Seat under radiator
SUBMITTED ANNO DOMINI 1925
Stair Hall
Den
Porch
Boiler Room
Coal Bin
Laundry
Detail
Seat under Radiator
Cellar Plan
Second Floor
First Floor
Section

Fourth Prize Design, Class B
Submitted by Alfred Kastner and Harry Bosworth, New York

The California Palace of the Legion of Honor, San Francisco

GEORGE A. APPLEGARTH, Architect
By LEIGH FRENCH, JR.

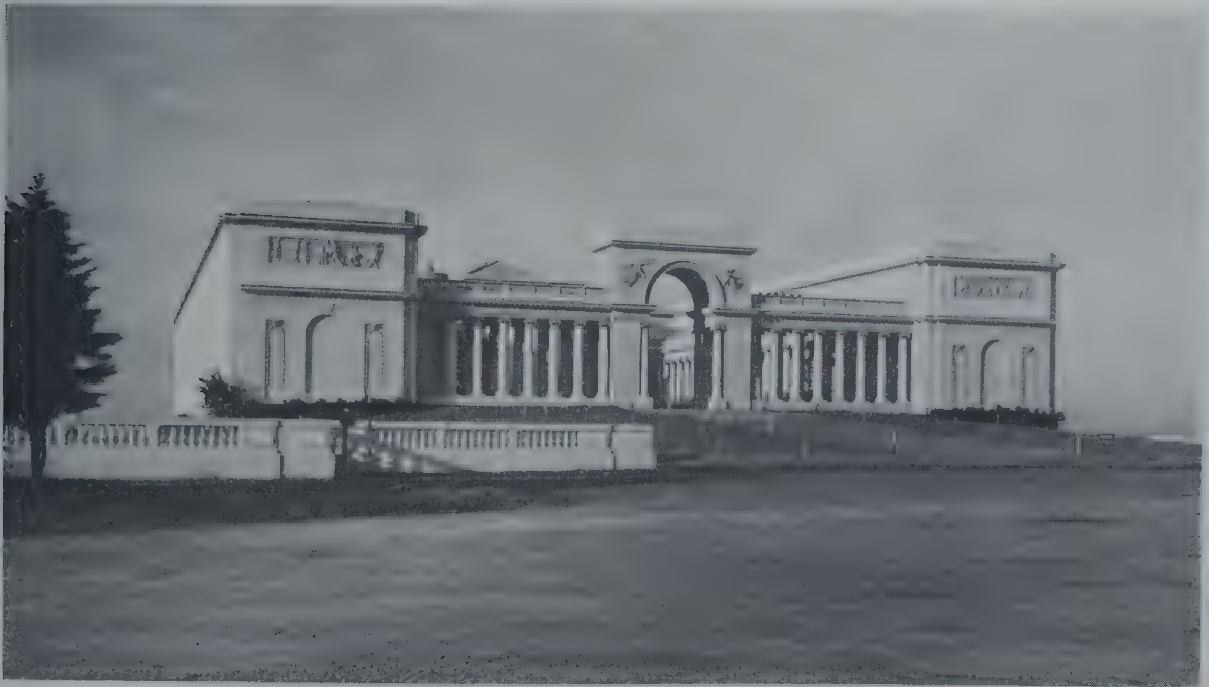
IN the name and purpose of the Palace of the Legion of Honor at San Francisco are suggested the ideas which both enhance and detract from the value of this monument as a work of architecture. In view of its importance and the great interest which has attached to its erection, as well as because of the very great influence which its design may have along the Pacific coast, it is only fair to analyze carefully the finished whole, and to describe those features about it which are worthy of praise.

The great difficulty in designing such a building as this lies in the fact that two diametrically opposed ideas supply the basic elements in the problem. The harmonizing of these two ideas is a well-nigh impossible feat. These two warring ideas are, first, the requirement that the building itself shall be a monument,—practically a copy of an old building whose historical character it is desired to suggest in its replica; and, second, the necessity that in plan and arrangement it shall fulfill the functions of a modern museum, two requirements difficult to harmonize.

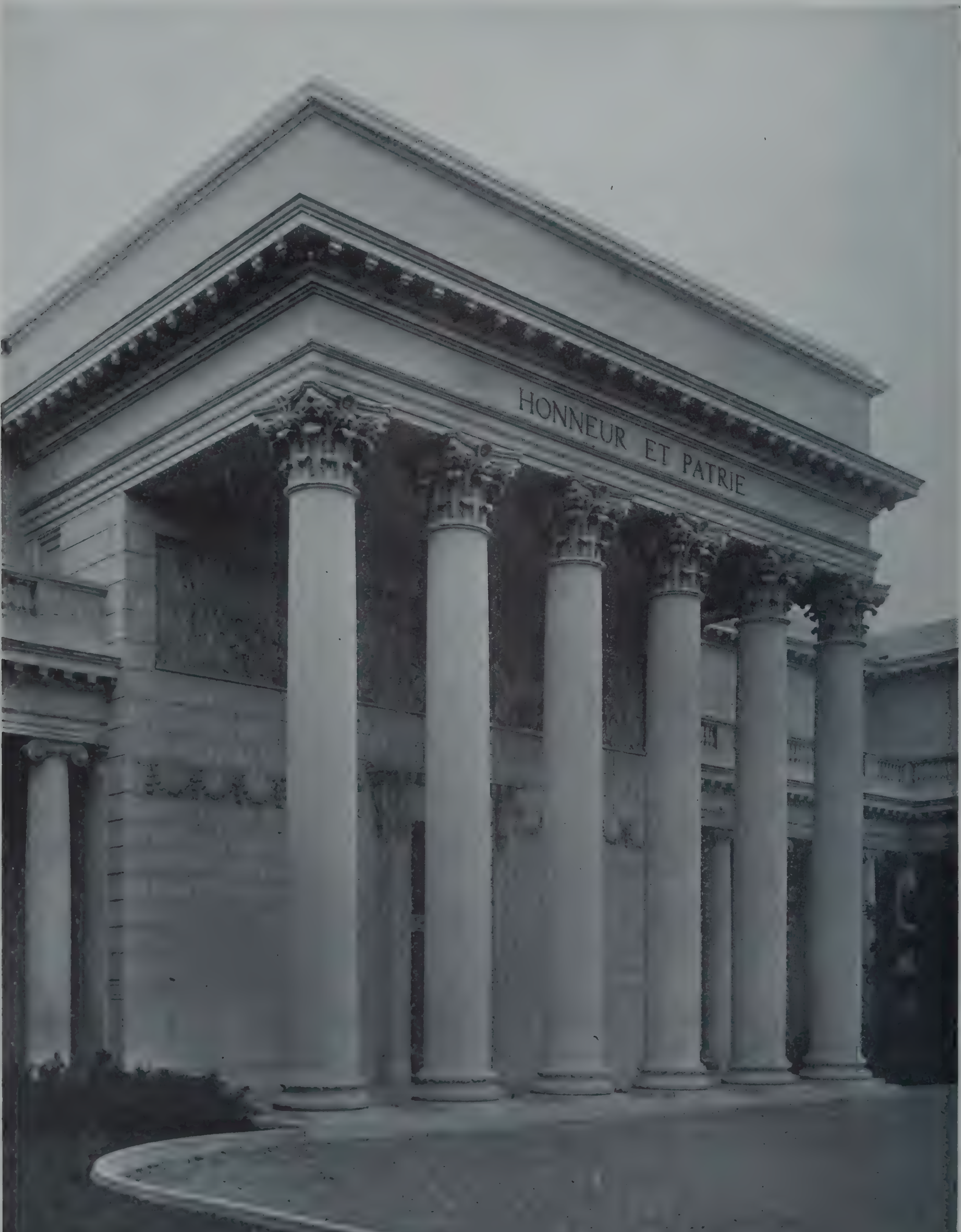
Let us examine these two elements and discover their essential requirements. We can then judge just how successfully the two may be combined. A monument, commemorating in some degree the Great War, and recalling in some respect the historic past, is to be built. For this purpose it has been decided to reproduce very closely a well known building whose association with Napoleon and the order of the *Legion d'Honneur* of France is of long standing. Putting aside any question of how appropriate this particular historic connection is in the present instance, from the architectural aspect there is some doubt as to the advisability and fitness of reproducing an ancient work as a contemporary monument.

The *Palais de la Legion d'Honneur,* on the *Quai D'Orsay,* built toward the end of the eighteenth century as the private house of a rich noble, is a city building, built upon a restricted property. Its arrangement permits of viewing it only from certain angles, and it is not studied as a mass to be seen from all sides. The social uses of the rooms, as well as the architectural and sculptural treatment which influenced its design and erection, were those of monarchical Paris toward the end of the reign of Louis XVI. The building is of cut stone, and the ornamental sculpture is from the facile chisels of the consummate artists of the eighteenth and the nineteenth centuries. So much, then, for the original building, not built as a monument but as a private dwelling for a rich aristocrat, suited to its city location and the climate of Paris, a gem of high quality in the fineness of its materials and the beauty of its ornament. It is thoroughly and essentially Parisian.

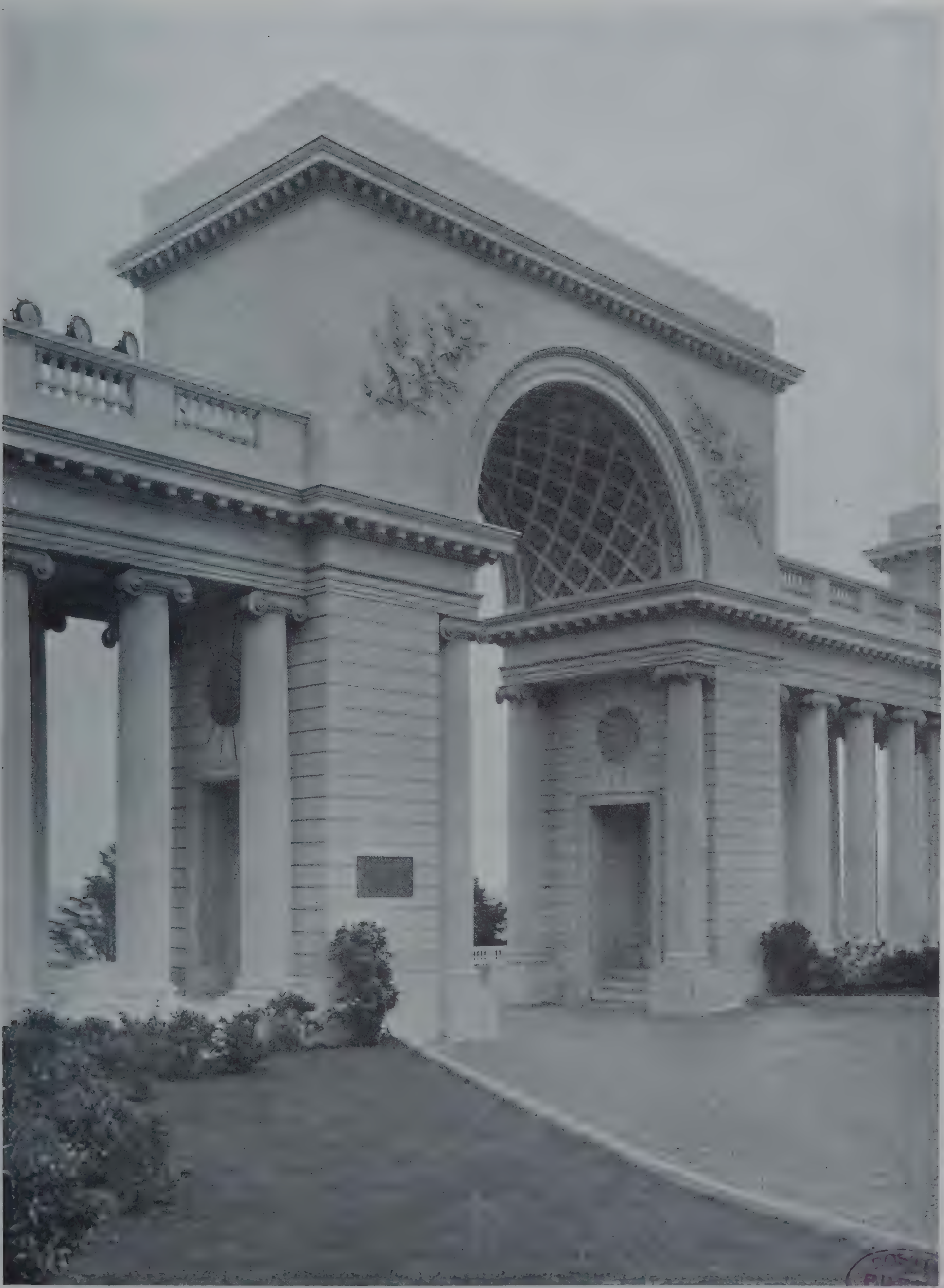
Of the ideas which underlie the planning of the modern museum, the most important is that the building itself shall preserve as simple a character as is consistent with dignity, and also that it shall constitute a fairly neutral background for the display of the works of art which it contains. The planning of such a building must be flexible and free, unhampered by limitations for the fullest development of the interrelation of parts and the circulation between these parts. Certain definite schemes have been perfected in the arrangement of the modern museum,—such as the use of secondary circula-



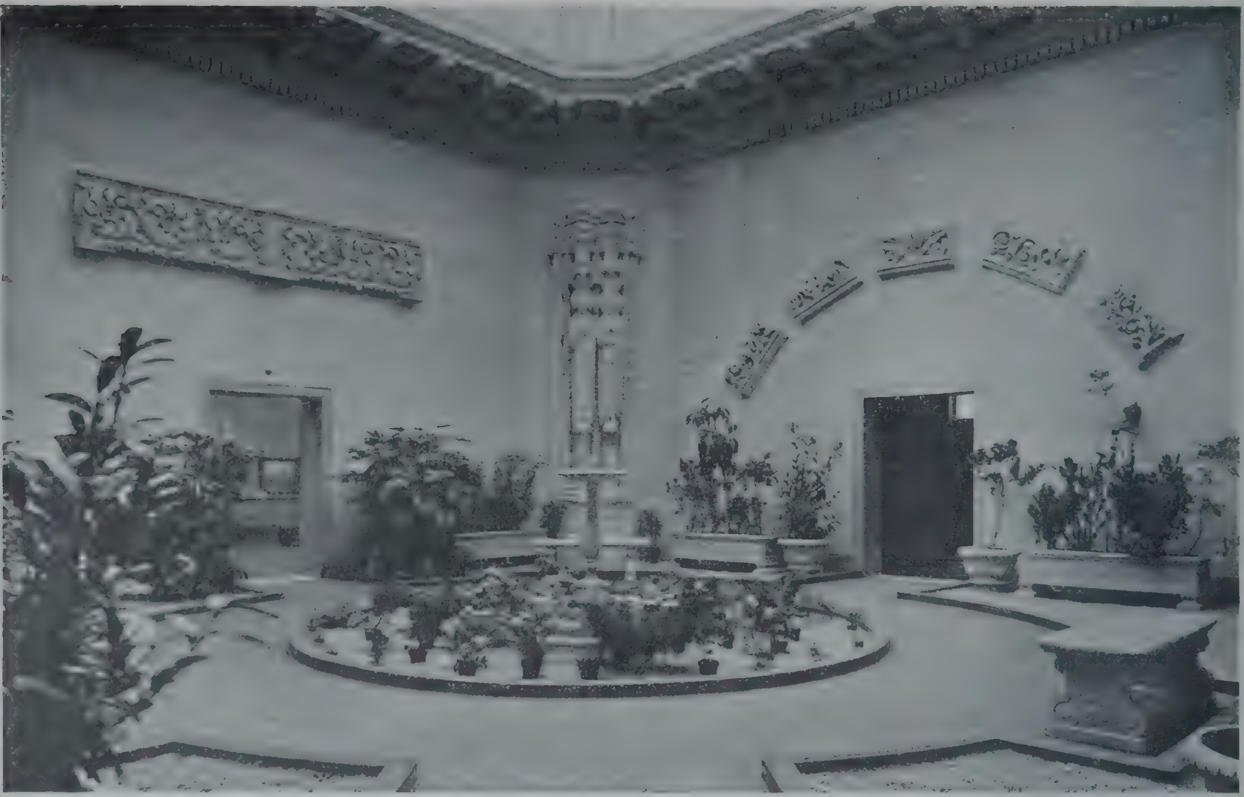
The California Palace of the Legion of Honor, San Francisco



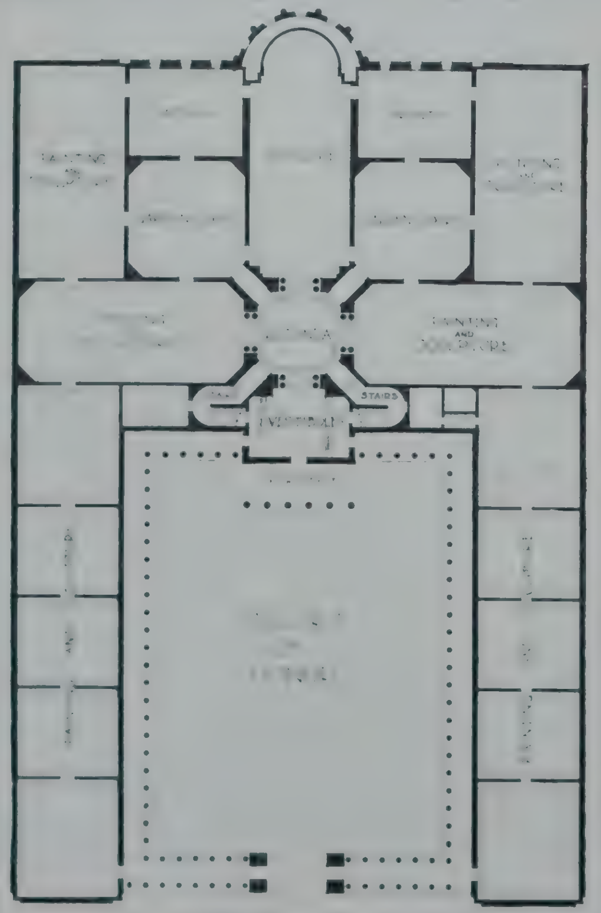
DETAIL, ENTRANCE PORTICO
CALIFORNIA PALACE OF THE LEGION OF HONOR, SAN FRANCISCO
GEORGE A. APPLEGARTH, ARCHITECT



ARCHWAY LEADING INTO ENTRANCE COURT
CALIFORNIA PALACE OF THE LEGION OF HONOR, SAN FRANCISCO
GEORGE A. APPLEGARTH, ARCHITECT



One of the Two Interior Garden Courts



The Main Floor

tion, so that any gallery may be shut off without closing adjacent rooms, compactness of plan to avoid as much as possible the fatigue of long walks and the unnecessary retracing of steps through the same galleries. Of primary importance is the necessity for a convenient circuit of the galleries in the handling of large crowds and for the benefit of visitors, who must be saved unnecessary steps.

Here, then, are the two fundamental requirements in the problem which faced the architect of the Palace of the Legion of Honor: to create, exteriorly, a monument following closely an old original (which in itself was not a monument), and to adapt this monument to the practical needs of a modern museum. To discern how successfully this problem has been met, we must examine the new building, first as a monument and secondly as a museum, and form an idea of its value as both.

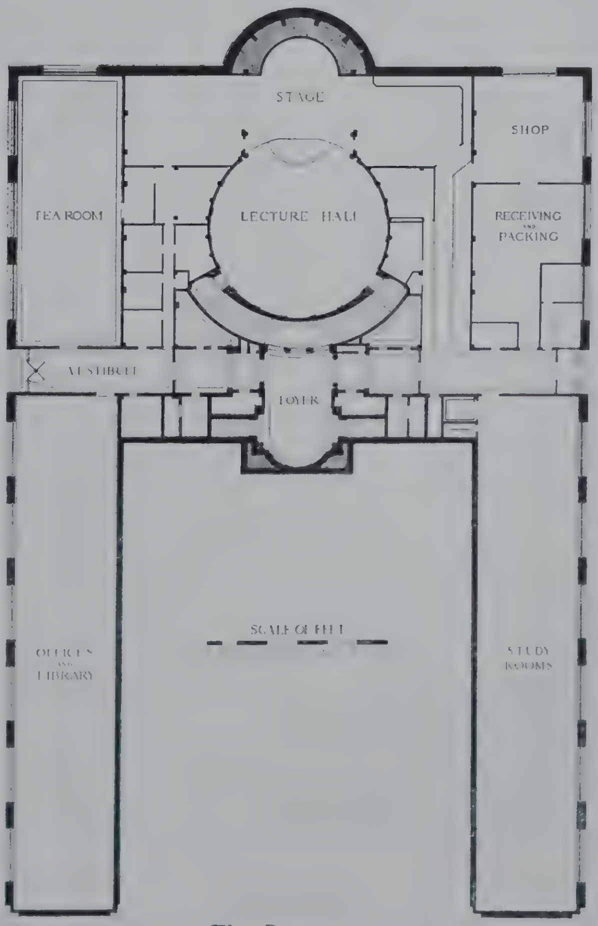
As we have said already, the original building was designed to occupy a restricted city property. Its mass was not studied in the round, but as a series of elevations, not viewed together from a distance. For this reason the present building had to be carefully studied to make it appropriate to its setting, which is the highest point in Lincoln Park, overlooking the ocean and the Golden Gate. From certain angles the great blank walls of the extending wings form an unpleasant contrast to the heavily columned screen set between the pavilions.

The original building of stone was intrinsically fine; the present structure is unfortunately of imitation Caen stone. In actual design, the replica

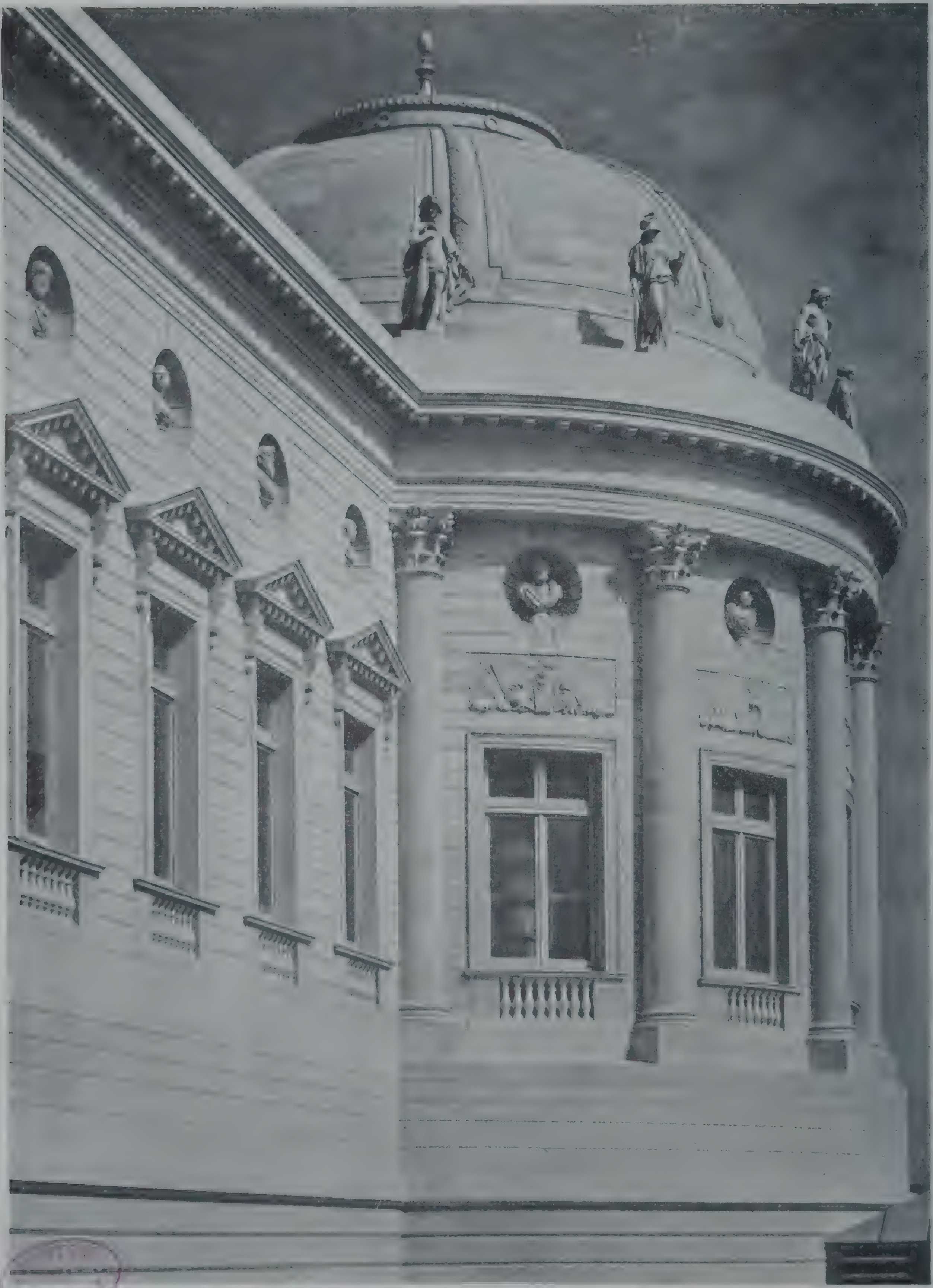
The Tapestry Gallery

is not exact. If it is desired to reproduce an ancient work it is essential to reproduce exactly its proportions and disposition of parts. The change in the relations between the entrance arch and the cornice and attic above it gives a very different character from that of the original and does not improve upon it. The variation in the pavilion ends and the return of the secondary cornice against the end walls, instead of carrying it around the corner, do not improve the result. It is such slight changes as these in the relation of parts as well as the elimination of the projection of the pavilións beyond the screen which gives to this most important elevation the effect of a paper design. In the original, the secondary cornice has the greater projection; in the replica this is reversed. Altogether, the changes introduced have not in any case improved upon the original. The grand court of honor is really handsome, but here again the difference in size renders the scale heavy and dry.

As for the plan, this leaves much to be desired. The main block, without the wings, is an eminently well planned little museum of the radiating type. The wings, however, are poorly placed for circulation, the visitor being obliged to retrace his steps throughout their length when once he has traversed them. Of the central mass, the great axial gallery, the small courts and the galleries at each side of the vestibule are wholly successful. The interior treatment of these rooms is very fine, quite ideal for their purpose and beautifully lighted. The little courts give a dramatic contrast, full of character.



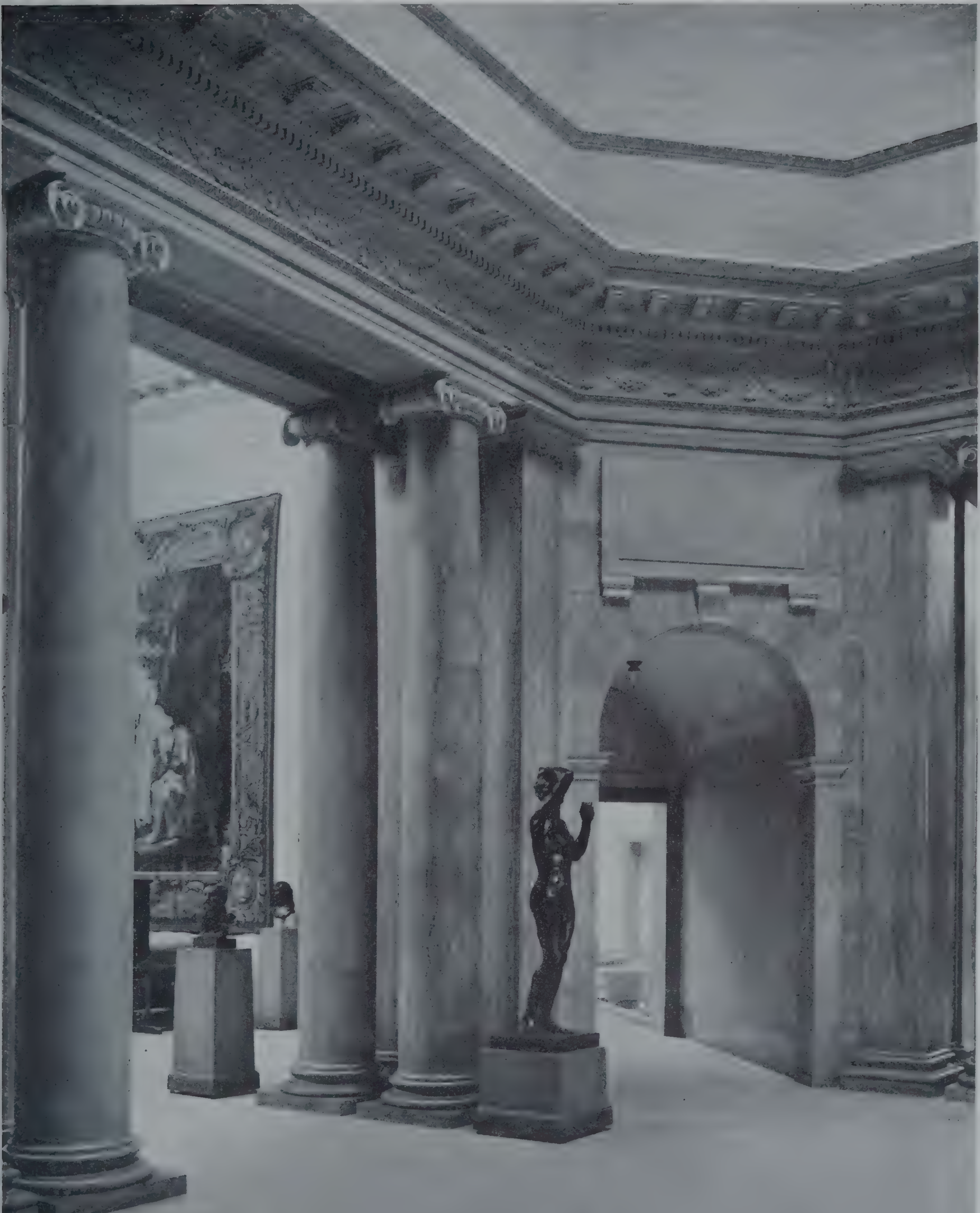
The Basement



DETAIL, SEMI-CIRCULAR BAY WITH DOME

CALIFORNIA PALACE OF THE LEGION OF HONOR, SAN FRANCISCO

GEORGE A. APPLEGARTH, ARCHITECT



DETAIL OF ROTUNDA

CALIFORNIA PALACE OF THE LEGION OF HONOR, SAN FRANCISCO

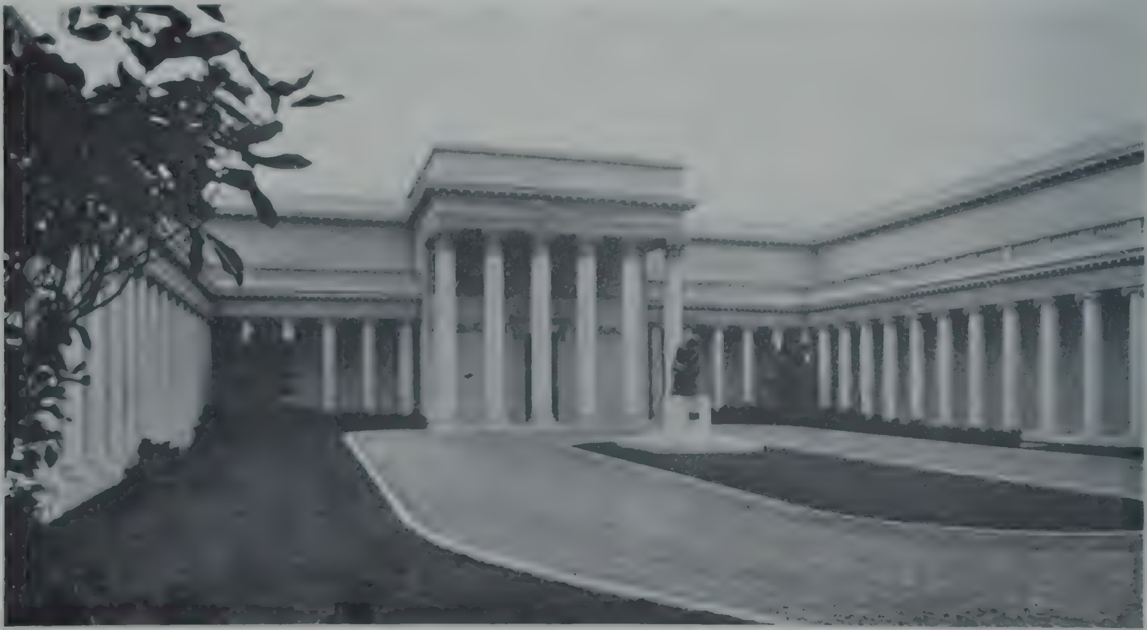
GEORGE A. APPLEGARTH, ARCHITECT

Imposing as the building is by reason of its bulk and many columns, it must be admitted that as a work of architecture it does not rise to any great height of inspiration. The limitation of plan forced by the adoption of a ready-made exterior could only be fatal to the solution of a proper plan for a museum on modern lines. The old European palaces, which form most of the present museums, are no criterion for the modern museum. The purposes of the museum today are of very recent development, and arrangements even 20 years old are out of date already. In reproducing the exterior scheme, the changes and variation from the original have lost all of the essential character and quality and have not substituted in their place any modern feeling which would have given the building some spirit in sympathy with present-day life and thought.

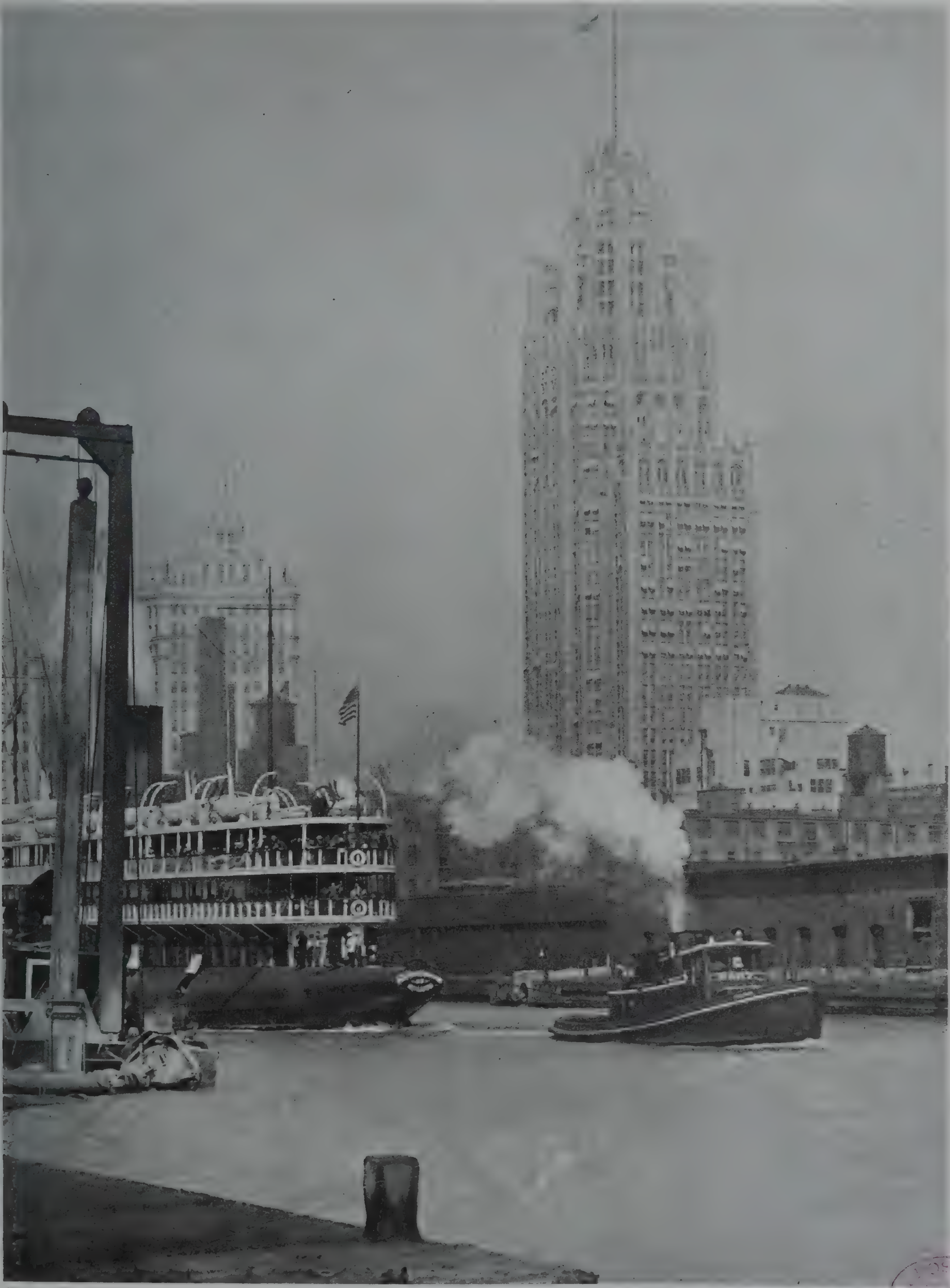
To criticize an imposing work of architecture into which has gone much thought, study and care, without deducing some constructive lesson from the criticism, is wholly unpardonable. In the case of such a problem as this Palace of the Legion of Honor, other approaches would have been possible. The things desired were a museum and a monument whose historic traditions and suggestions would bring to mind victorious war in behalf of freedom. But why not, in such a case, create a practical monumental museum plan of the best modern sort, express this plan in a dignified external form, and utilize in its architectural ornamental features those historical suggestions which might bring in the clearest statement of the present purpose of the building? These suggestions might well have come from the *Palais de la Legion d'Honneur* in Paris, or from elsewhere.

It is not possible to achieve a good plan if limited by a ready-made exterior, nor is it wise to erect as a contemporary monument a replica of a building, the purposes for which it was erected being utterly different from those for which the copy is intended. For this reason the building which we are considering may have its proper reaction upon contemporary architecture. To the critical eye it must present the difficulty, nay, impossibility, of creating a living work of art out of whole cloth. The idea of the replica, whether in sculpture or painting, implies a lesser quality of fineness than that possessed by an original. In a work ,where not only æsthetic needs are to be met, but practical requirements fulfilled, it is particularly essential to create special forms and arrangements to meet the special conditions. It may well be doubted, in fact, whether the reproduction of any ancient building is really successful. In all ages architecture has constituted a visible, tangible expression of the life of a period and people, and when a building is reproduced at a later period, and particularly in a land far from where the design had its origin, the effort is likely to result in an anachronism.

In the choice, in the first place, of the *Palais de le Segri* in Paris as the original inspiration for the design, there lies a certain error. Although the association of the building has been with the Legion for many years, the contemporary inspiration which produced its architectural form is wholly out of consonance with modern American life. Above all things, this monument should have expressed in enduring form some qualities of the America of today. Much more truly could the influence of the French genius have been expressed in terms which France has taught us to make our own. And so, from the essential basis of æsthetic inspiration, practical purpose, historical suggestion and creative art, this great building points a moral to all architects today whose interest lies in the reproduction of forms and decoration of the past. For those who wish to express the spirit of their own time to hand on to future generations it points a moral as well as a warning.



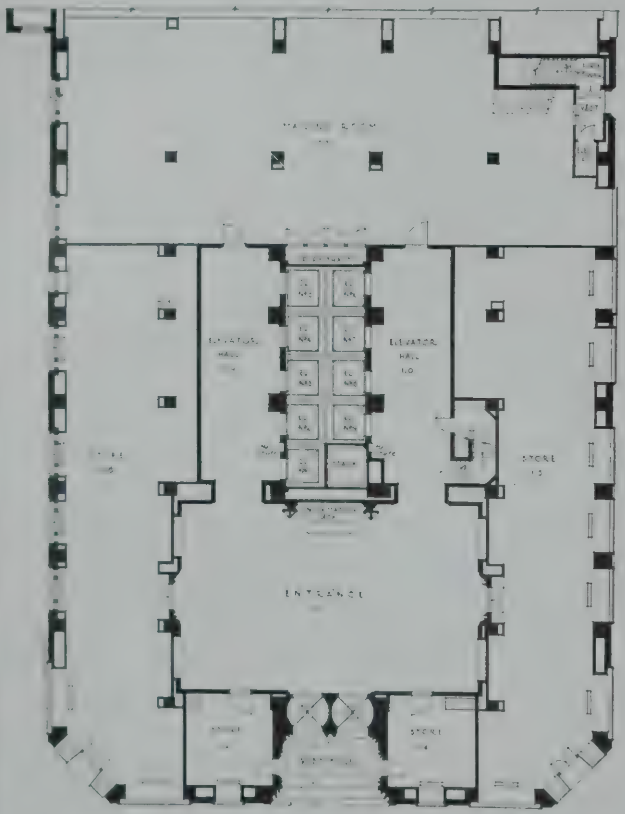
Court of Honor, California Palace of the Legion of Honor, San Francisco



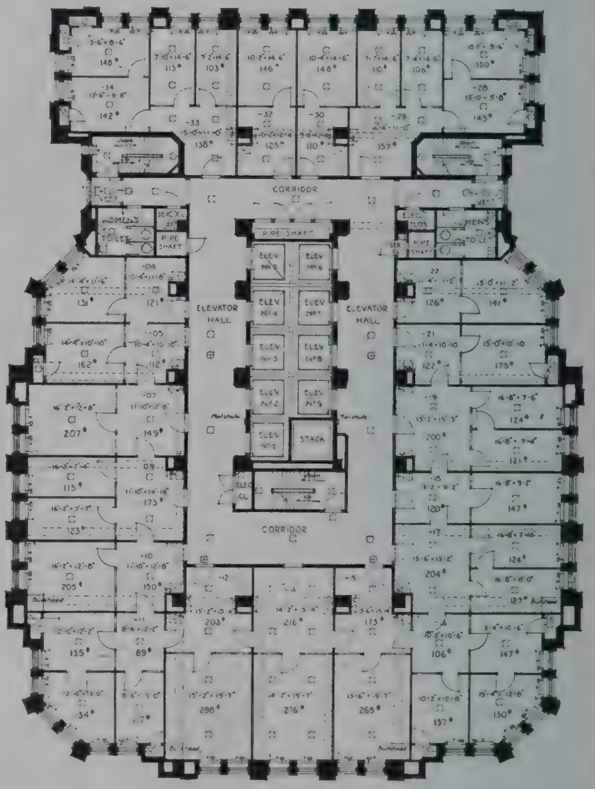
Photos. Trowbridge

Plans on Back

TRIBUNE TOWER FROM THE CHICAGO RIVER
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



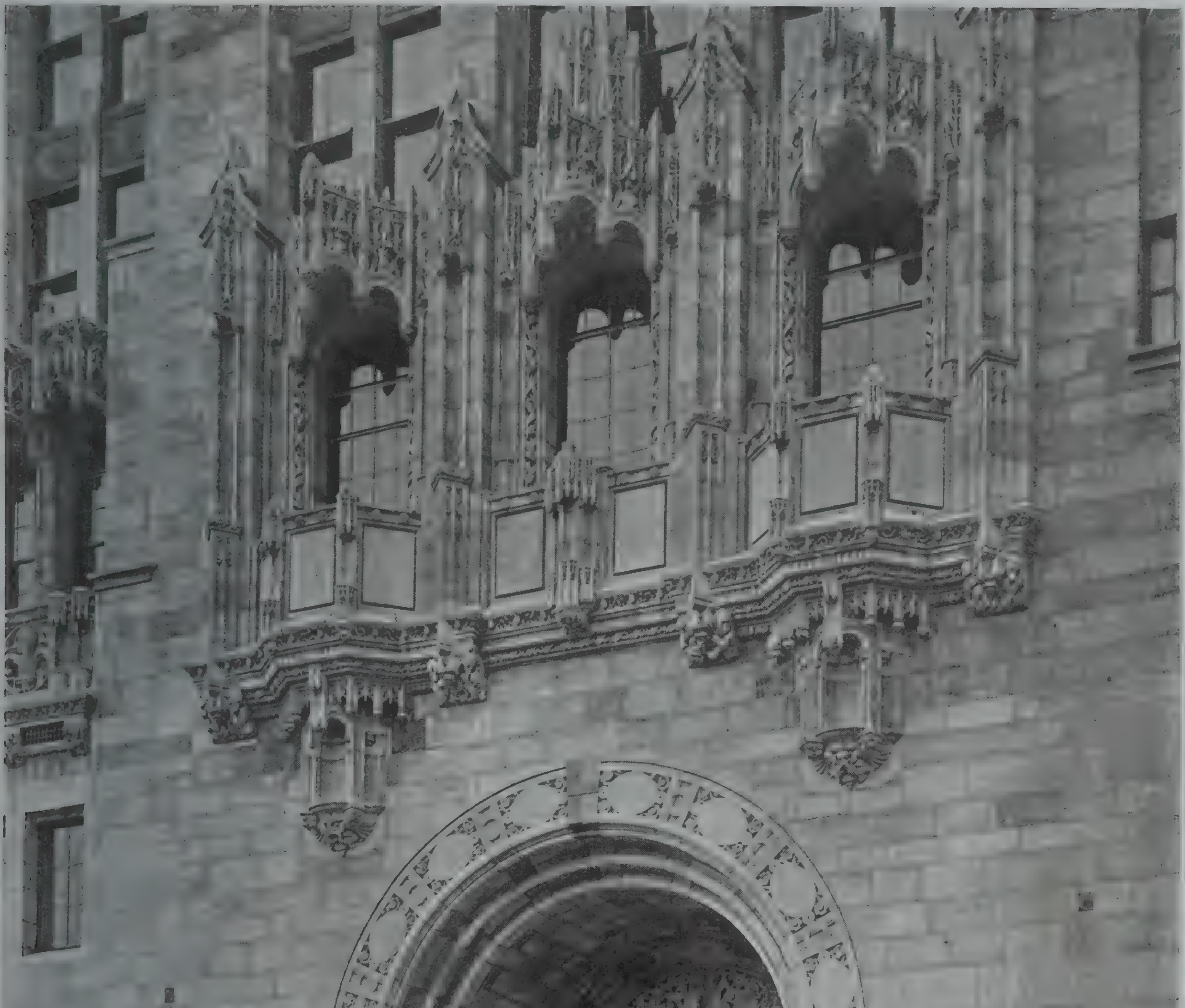
ENTRANCE FLOOR



A TYPICAL FLOOR

PLANS, TRIBUNE TOWER, CHICAGO

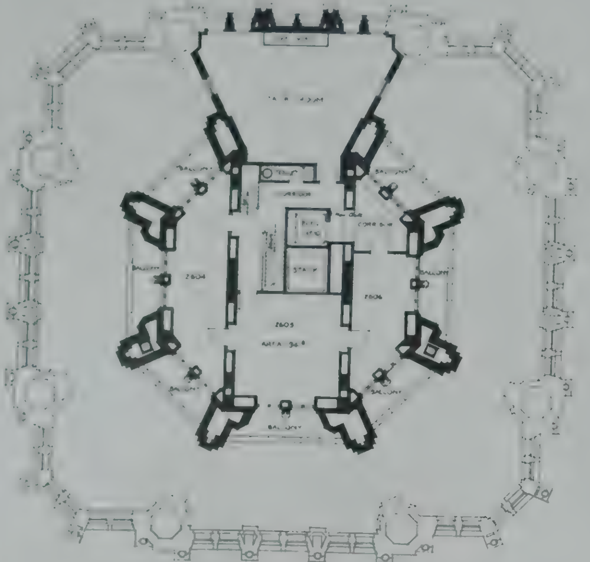
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



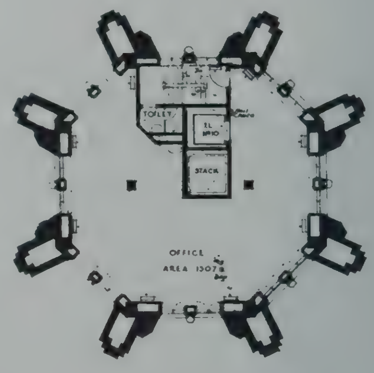
DETAILS OF ENTRANCE, TRIBUNE TOWER, CHICAGO
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS

Plans on Back

LIBRARY



26th FLOOR



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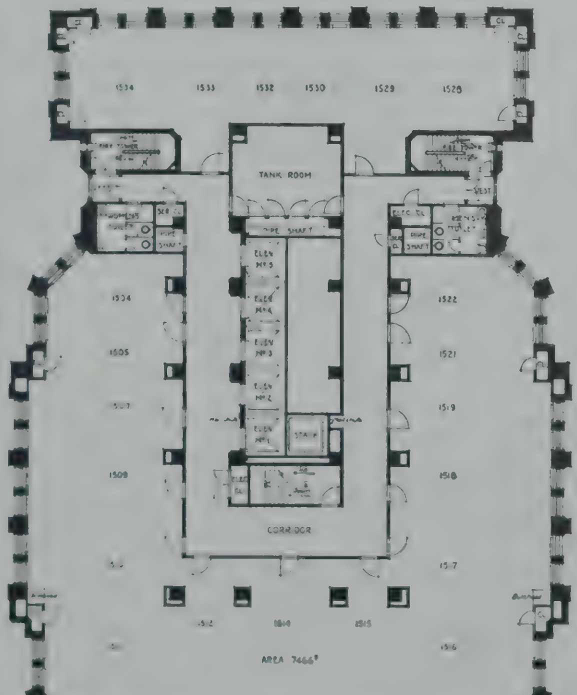

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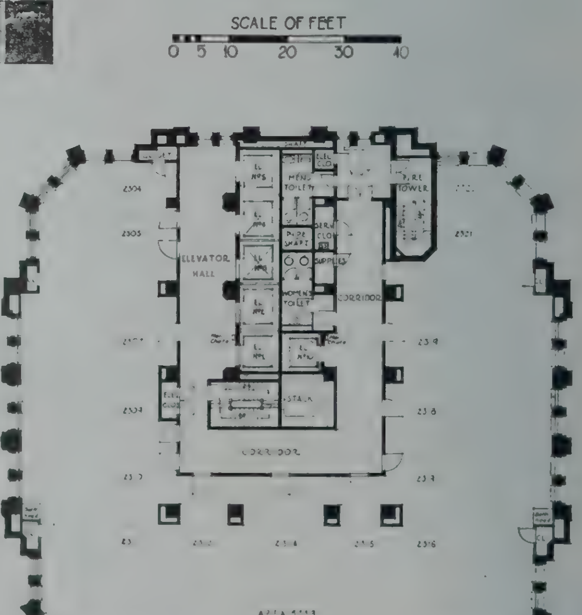
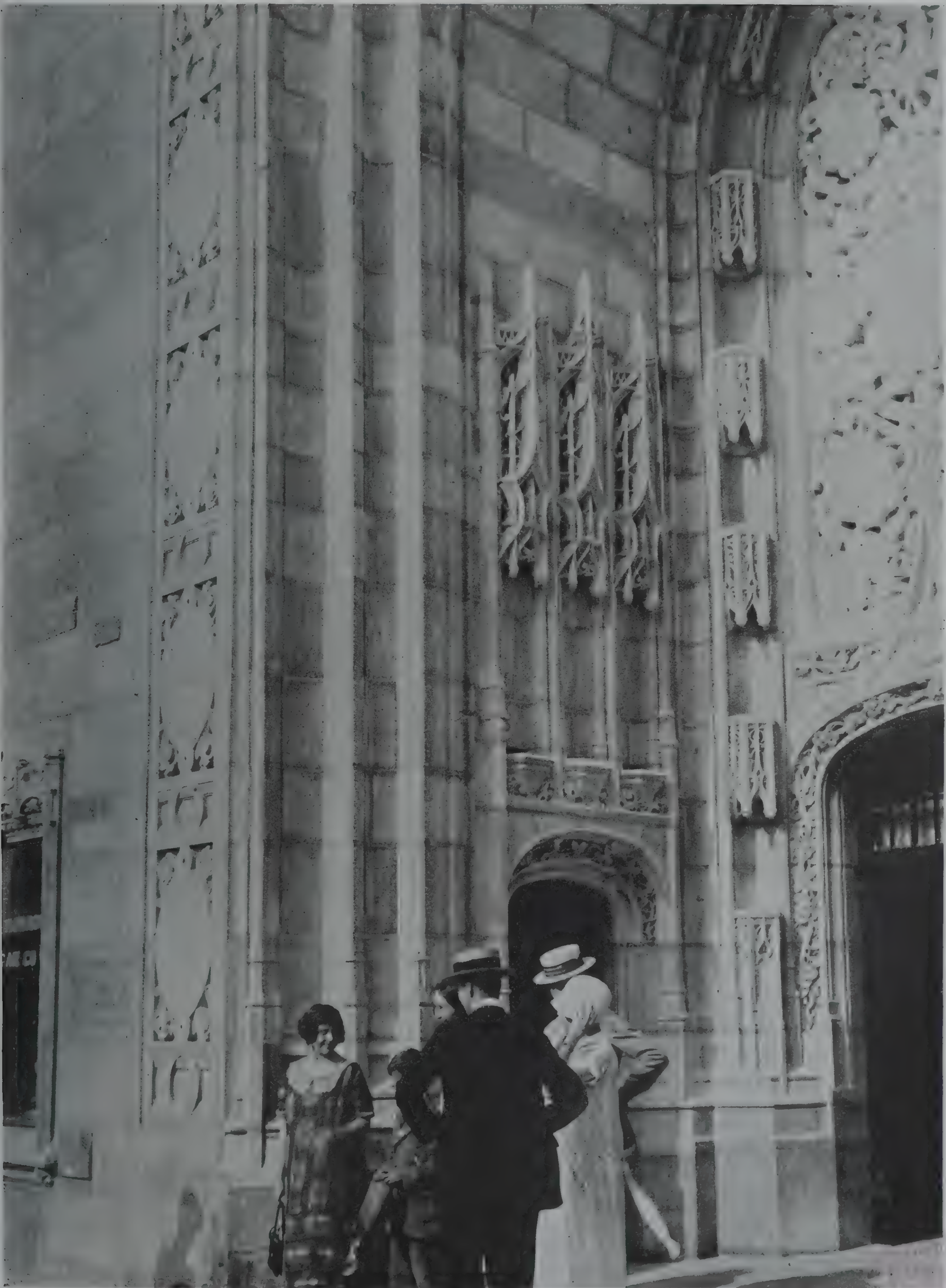


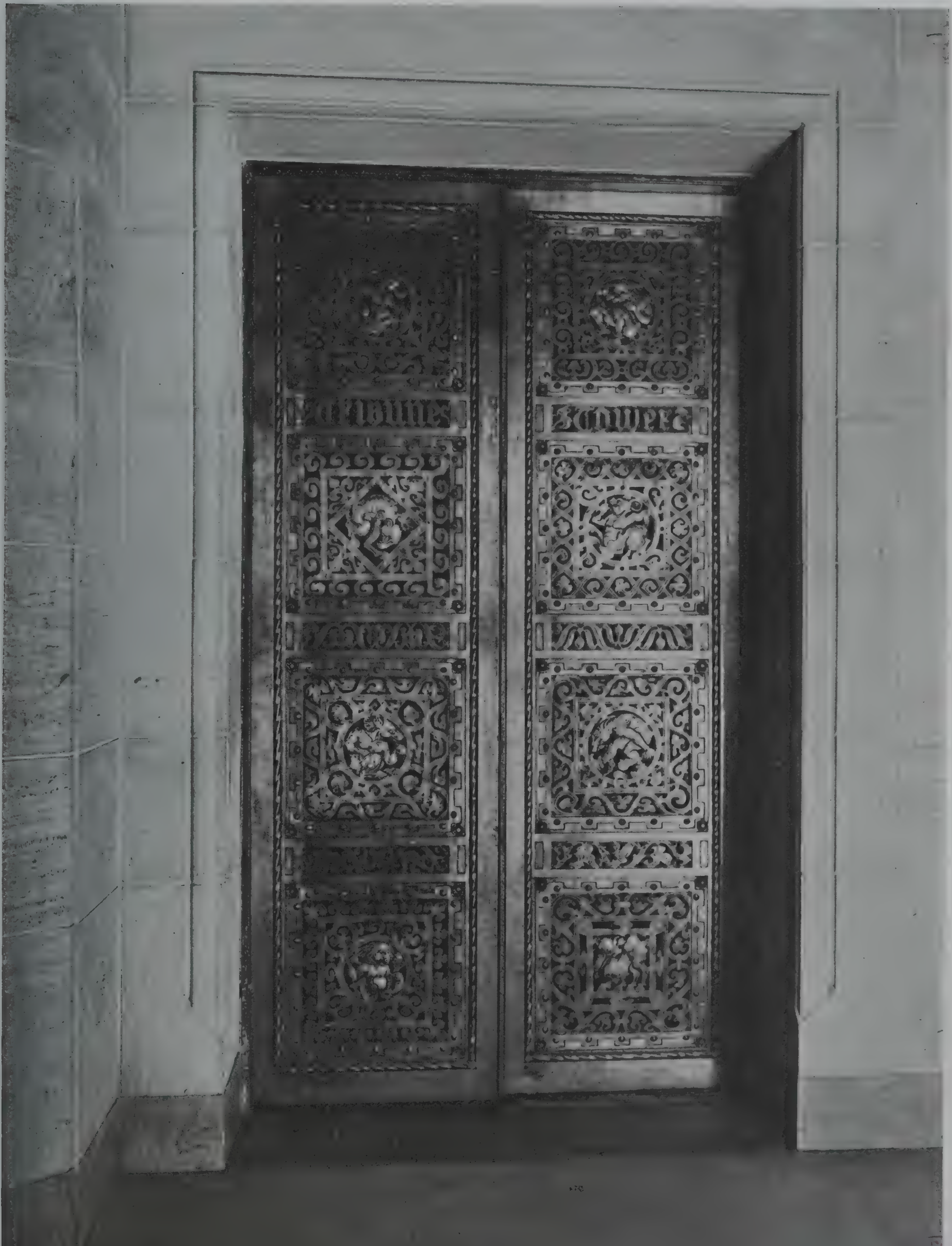
23d FLOOR

PLANS, TRIBUNE TOWER, CHICAGO

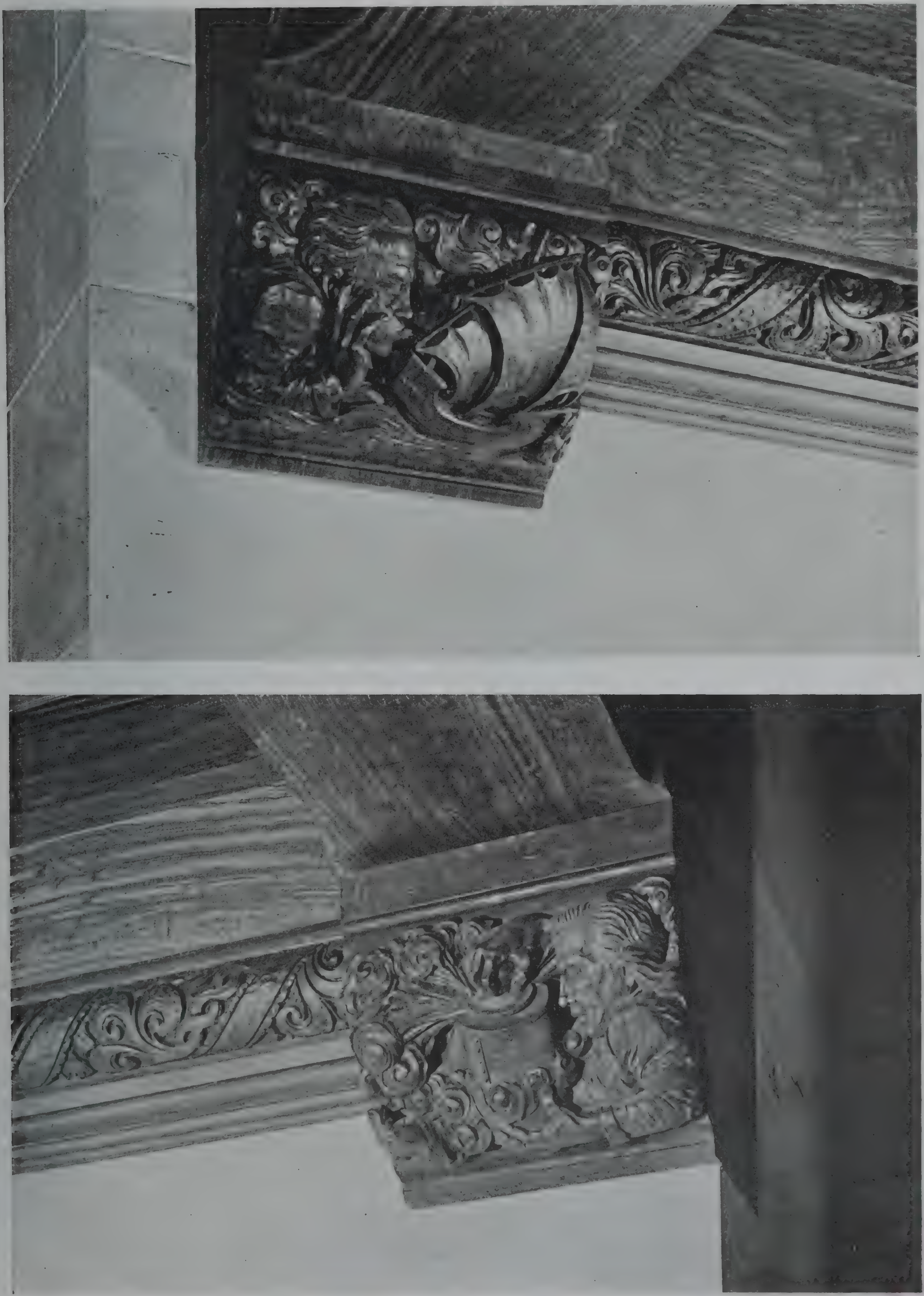
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



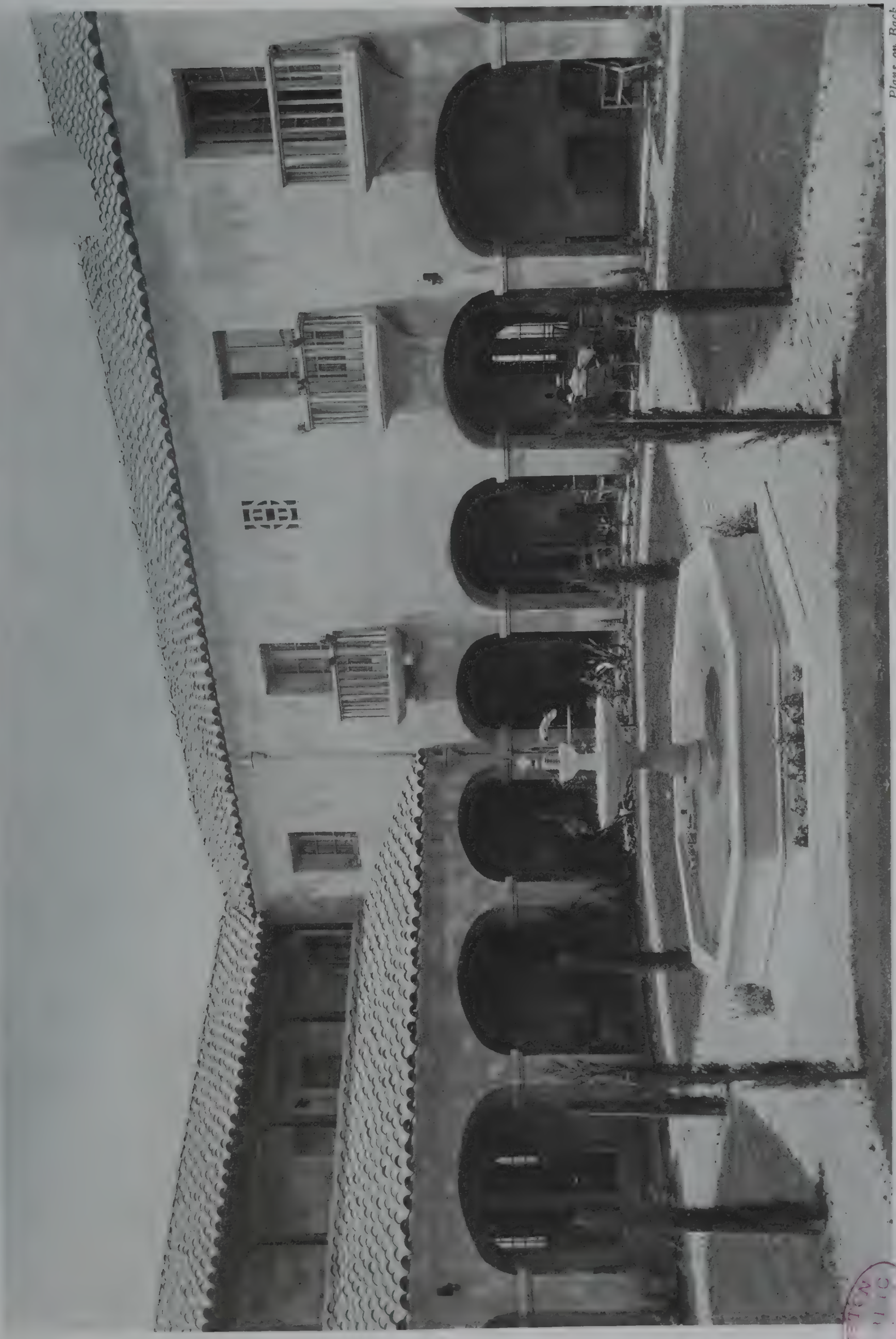
DETAIL, MAIN ENTRANCE, TRIBUNE TOWER, CHICAGO
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



DETAIL, BRONZE ELEVATOR DOORS, TRIBUNE TOWER, CHICAGO
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



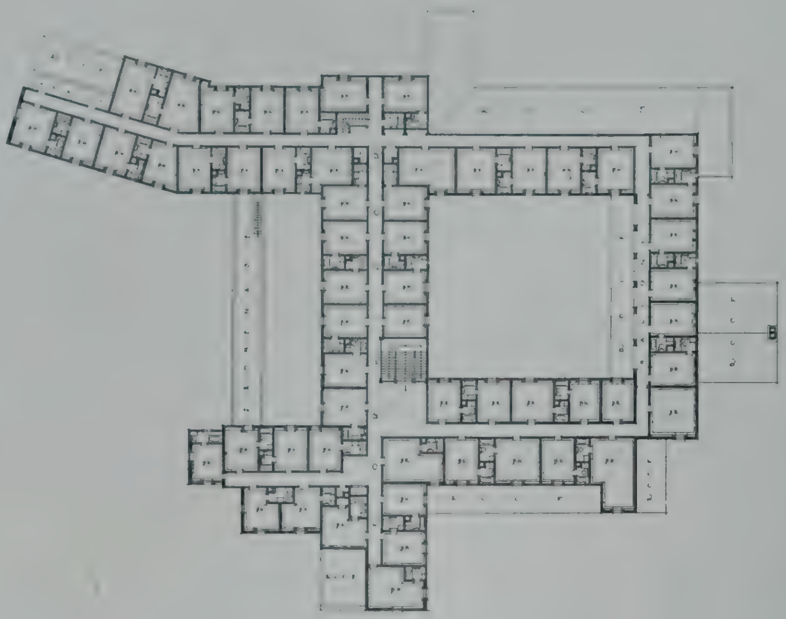
DETAILS OF CARVING, TRIBUNE TOWER, CHICAGO
JOHN M. HOWELLS AND RAYMOND M. HOOD, ASSOCIATED ARCHITECTS



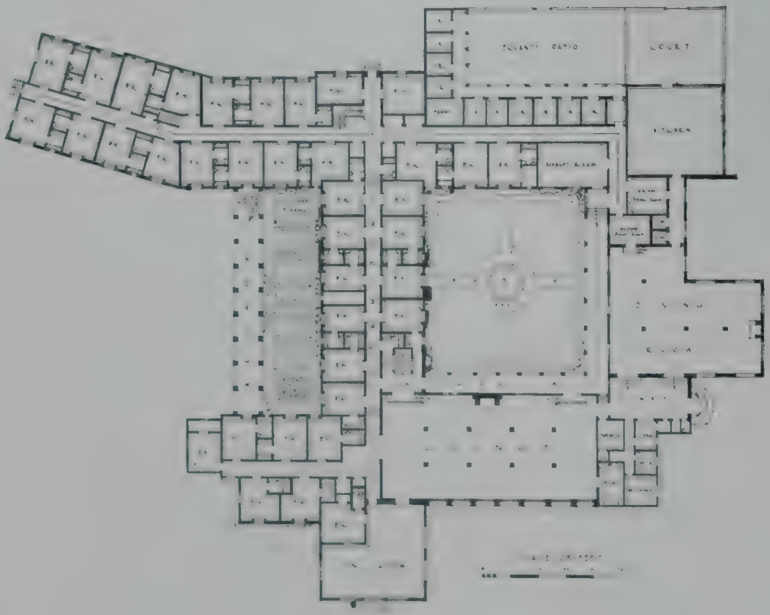
Plans on Back

PATIO OF THE CASA DE MANANA, LA JOLLA, CALIF.

EDGAR V. ULLRICH, ARCHITECT



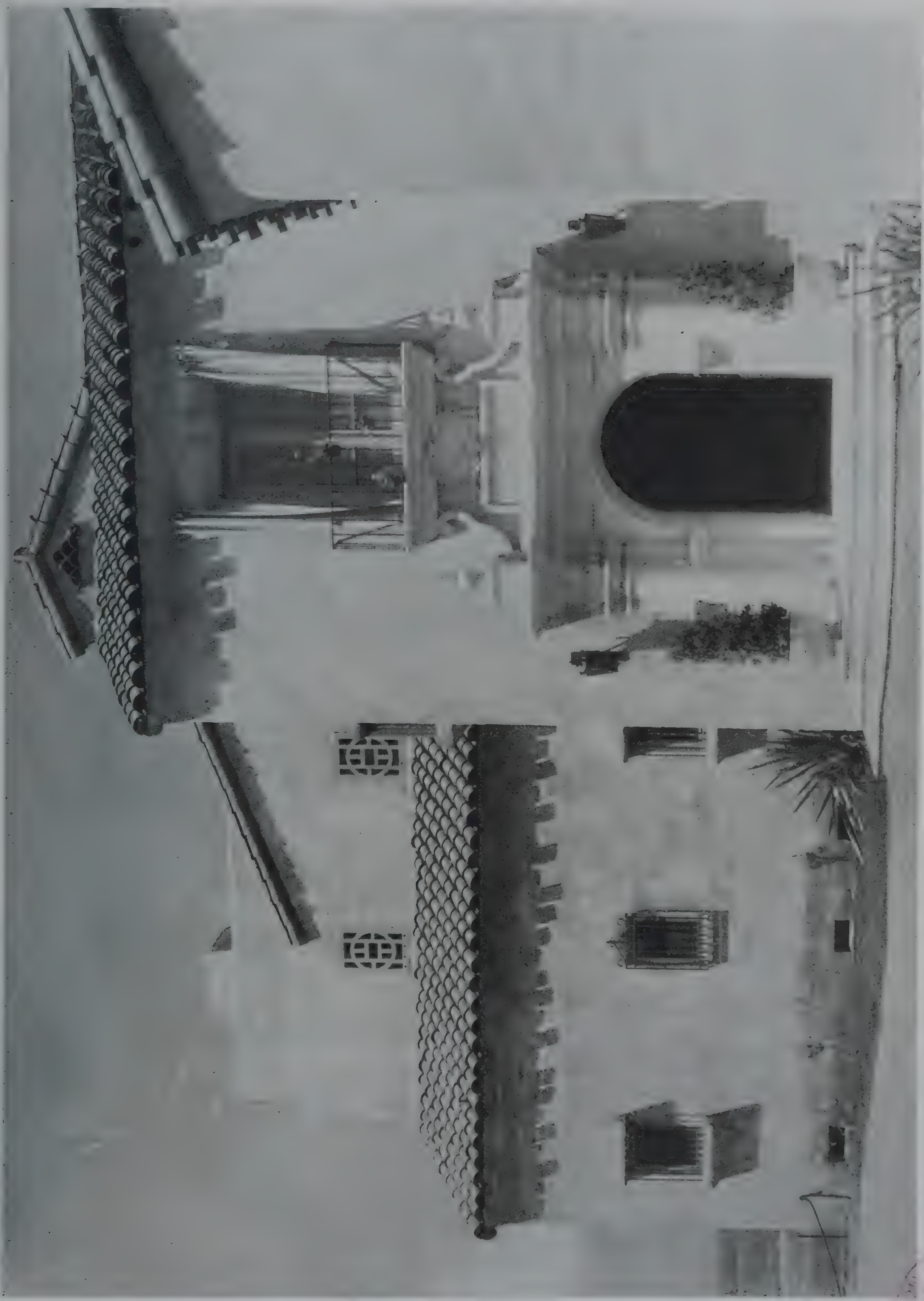
SECOND FLOOR



FIRST FLOOR

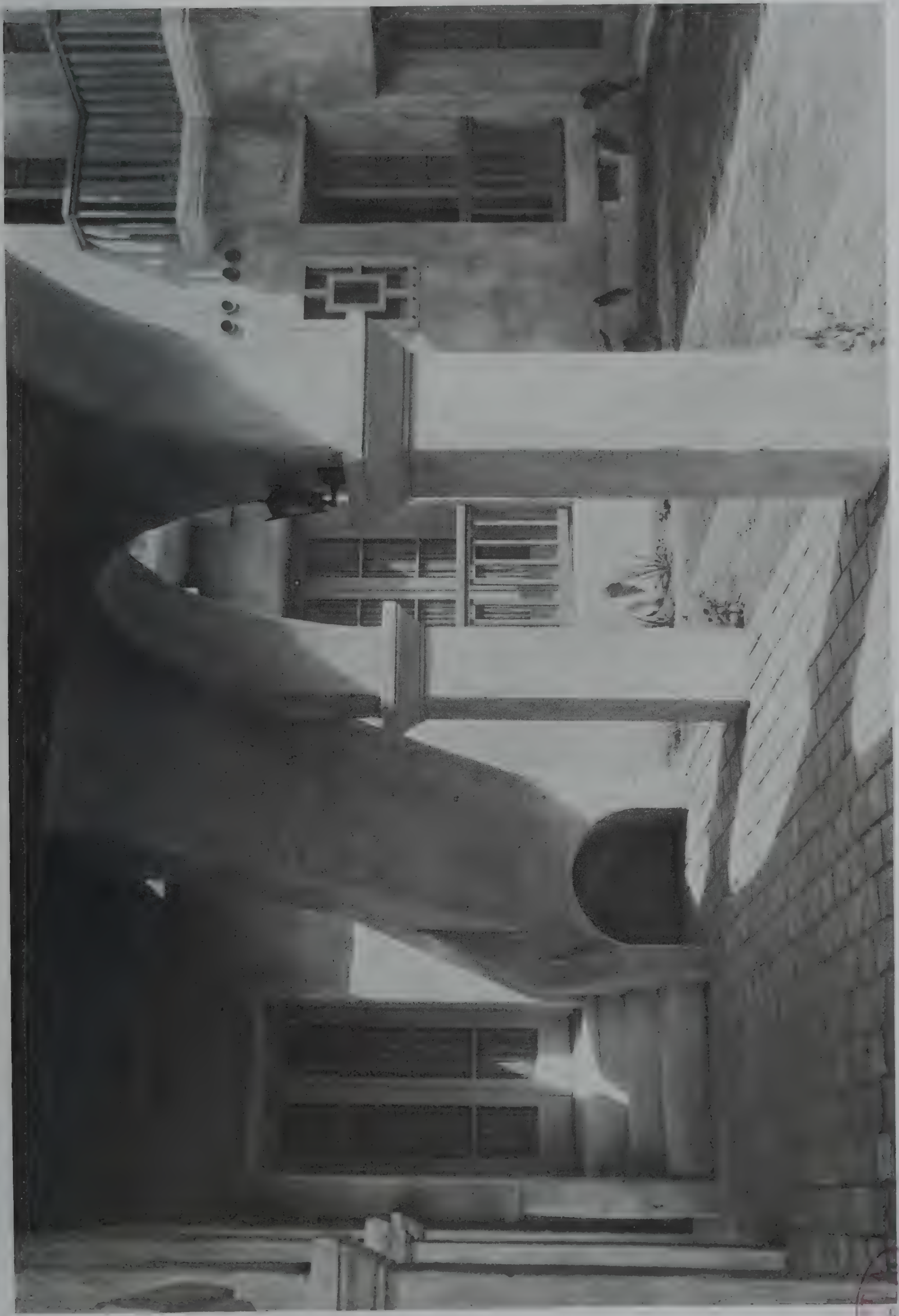
PLANS, CASA DE MANANA, LA JOLLA, CALIF.

EDGAR V. ULLRICH, ARCHITECT



DETAIL, ENTRANCE TO THE CASA DE MANANA, LA JOLLA, CALIF.

EDGAR V. ULLRICH, ARCHITECT



DETAIL, CLOISTER IN PATIO OF THE CASA DE MANANA, LA JOLLA, CALIF.
EDGAR V. ULLRICH, ARCHITECT

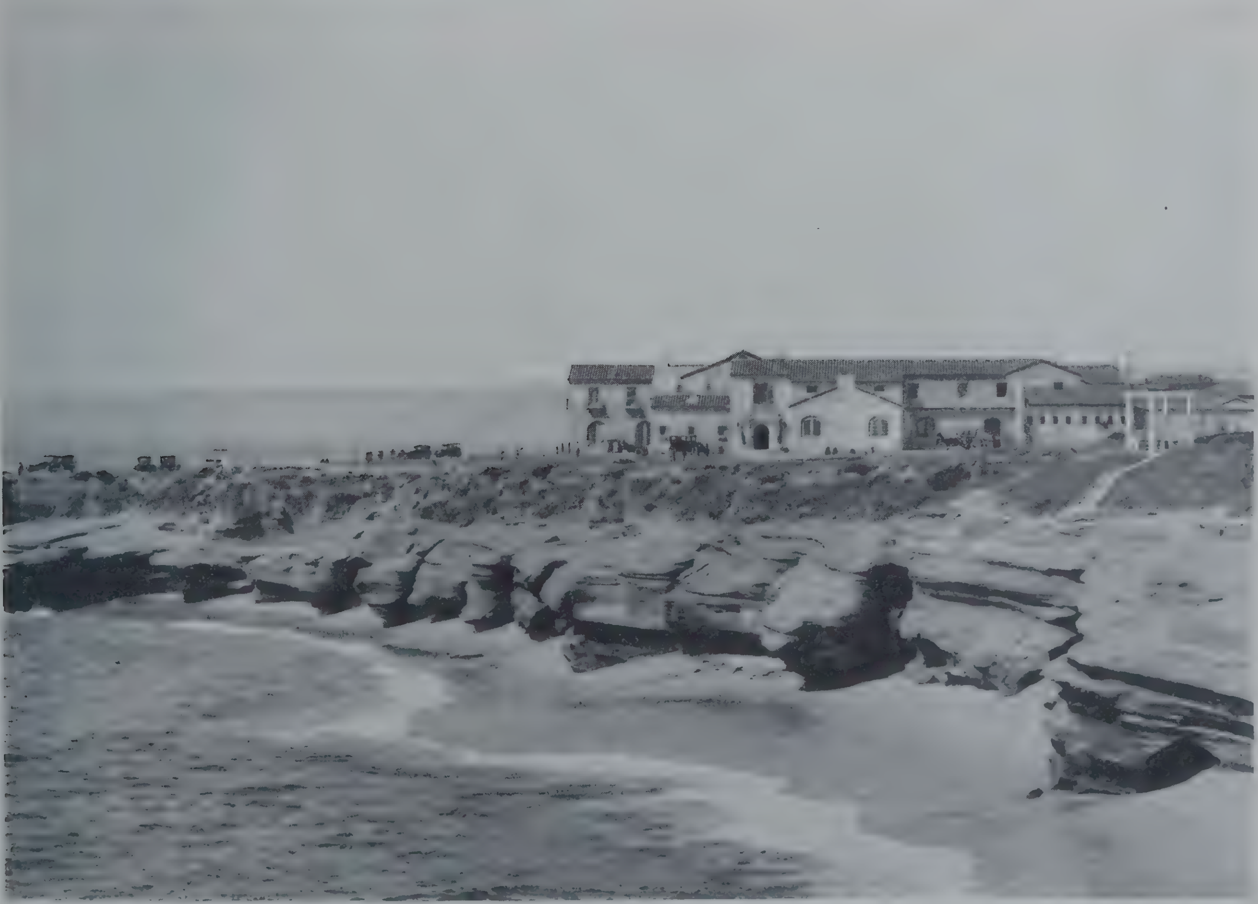
Spanish Architecture in the Modern Hotel

By BOARDMAN PICKETT

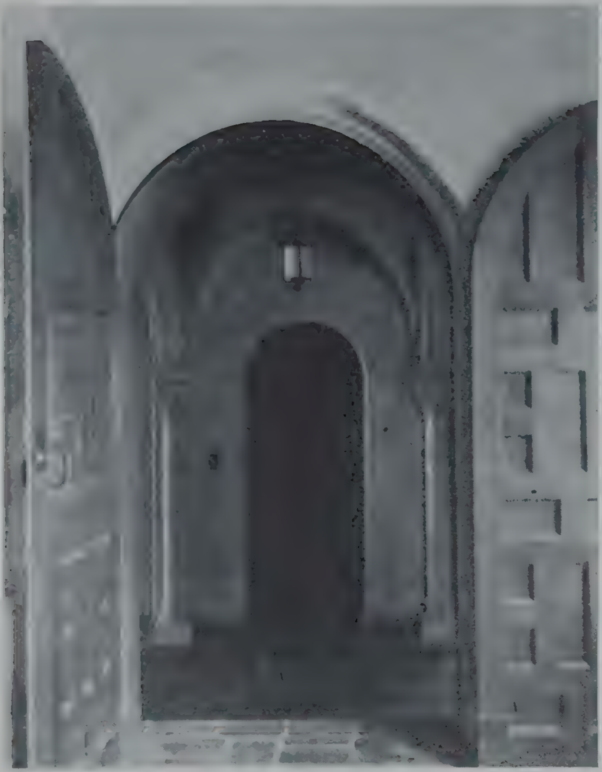
THE "Casa de Manana," La Jolla, California, is a striking example of a hotel which includes all modern conveniences and at the same time possesses much Old World charm and picturesqueness of appearance. In this new hostelry, designed by Edgar V. Ullrich, the general principles of Spanish Colonial architecture have been successfully adapted to the topography, climate and the needs of American life. So perfectly has the hotel been fitted into its surroundings that it seems to be a part of the promontory on which it stands. Its low, irregular shape, its broken roof lines of various heights, and its neutral toned walls set off by red tiles make the building seem to be almost a continuation of the shore line itself. As one looks down upon the hotel from near-by elevations, the tiled roofs rise like ledges of warm toned rock from the water's edge.

Aside from their picturesqueness, perhaps the chief reason for the frequent adoption of the Spanish types of architecture in southern California is their suitability to the climate. This is particularly true of coast cities, where prevailing winds make outdoor living unpleasant, excepting in sheltered spots. The Casa de Manana meets this situation by providing a large patio, which is entirely surrounded by the various parts of the building, but which is open to the sun and sky. From an architectural point of view this patio is interesting because each of its four sides has been worked out differently. On one side is a loggia extending to the second story line, where comfortable chairs tempt visitors to linger and bask in the sunshine. On the opposite side there is a fine iron balcony a few feet above the ground and running the entire length of the patio. A red tiled roof projecting over a loggia gives a pleasing note of color to the third side, while the fourth is made interesting by full-length doors opening onto small balconies and by an arched window.

There is noticeable variety in the designs of wall openings and other architectural details in the patio, as well as in other parts of the building. A fountain and semi-tropical plants add to the patio the final touch needed to make it just such a place as visitors from the East and the middle West expect to find in "sunny California,"—a place where they can roam around among the flowers and forget the cold wind



The Casa de Manana, La Jolla, Calif.
Edgar V. Ullrich, Architect

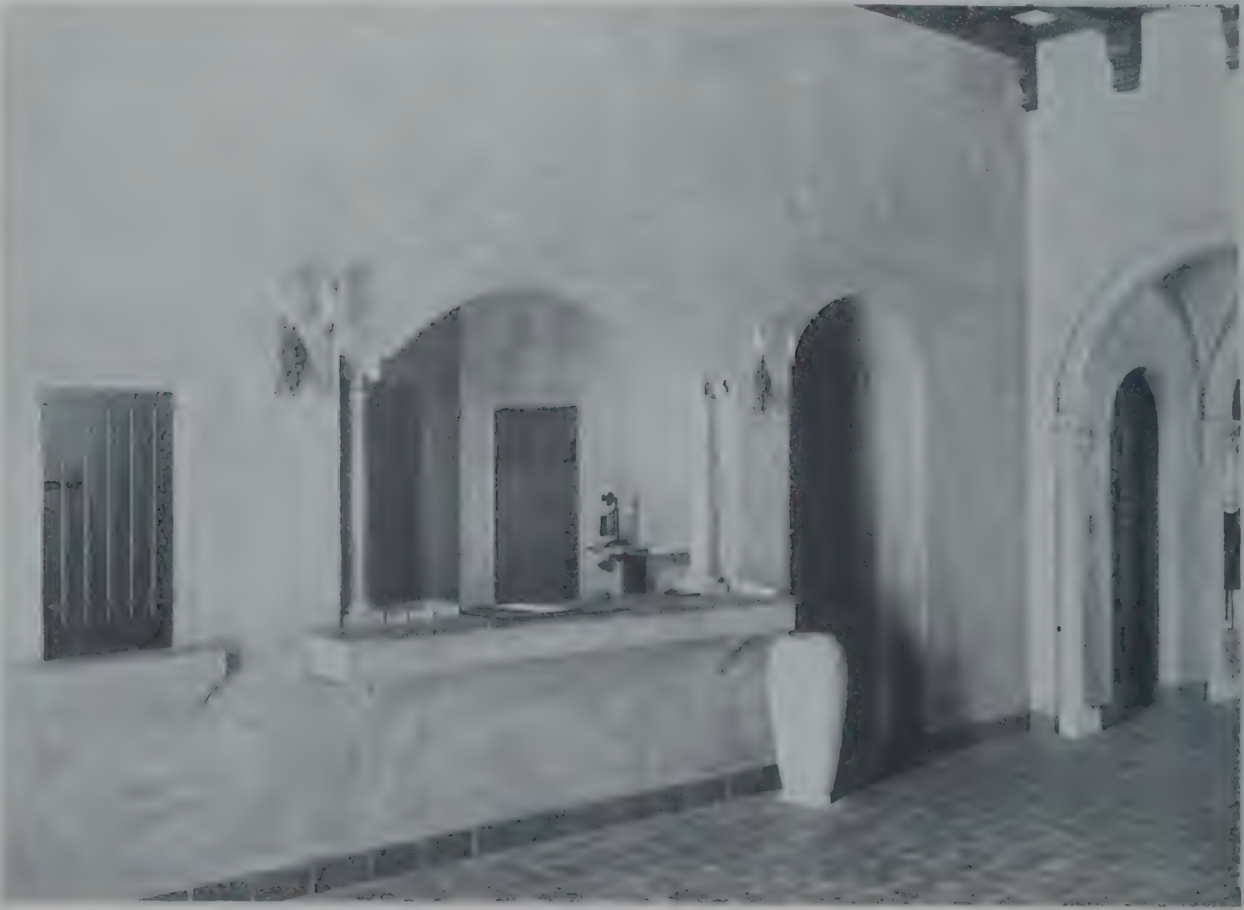


Detail, Doors from Entrance Hall to Living Room, Casa de Manana

outside. The sense of living an outdoor life in a semi-tropical country is alluring, not only to those who have recently left colder climates but also to those who have become accustomed to the freedom of California living, which is largely out of doors.

In the lounge or living room the same idea of protection from the wind, with apparent out-of-door living, has been successfully carried out. Arched, full-length doors running along the entire side of the lounge give visitors a large part of the pleasure experienced when sitting on a bluff overlooking the sea, at the same time allowing them the comforts of easy chairs and a crackling open fire. The arched doors are so designed that from the outside they resemble the arches of a cloister, thus agreeing with the Spanish style of architecture rather than seeming to break up the exterior wall spaces too definitely, as large windows are likely to do. On the side of the room opposite these doors the lounge opens into the patio, thus admitting fresh air without a strong wind. The dining room carries out the same plan of having large arched windows on the ocean side and providing intimate connection with the patio.

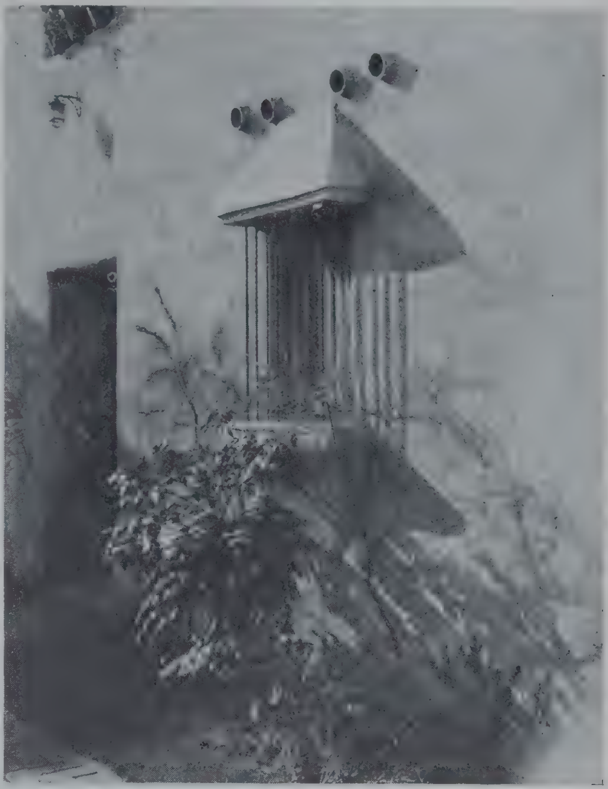
A second patio, protected on three sides from the prevailing southwest winds, affords pleasant seclusion for those occupying the rooms which adjoin it. An arcade running across this patio, from one wing of the building to the other, has a stairway leading up to its balconied roof, where visitors can enjoy

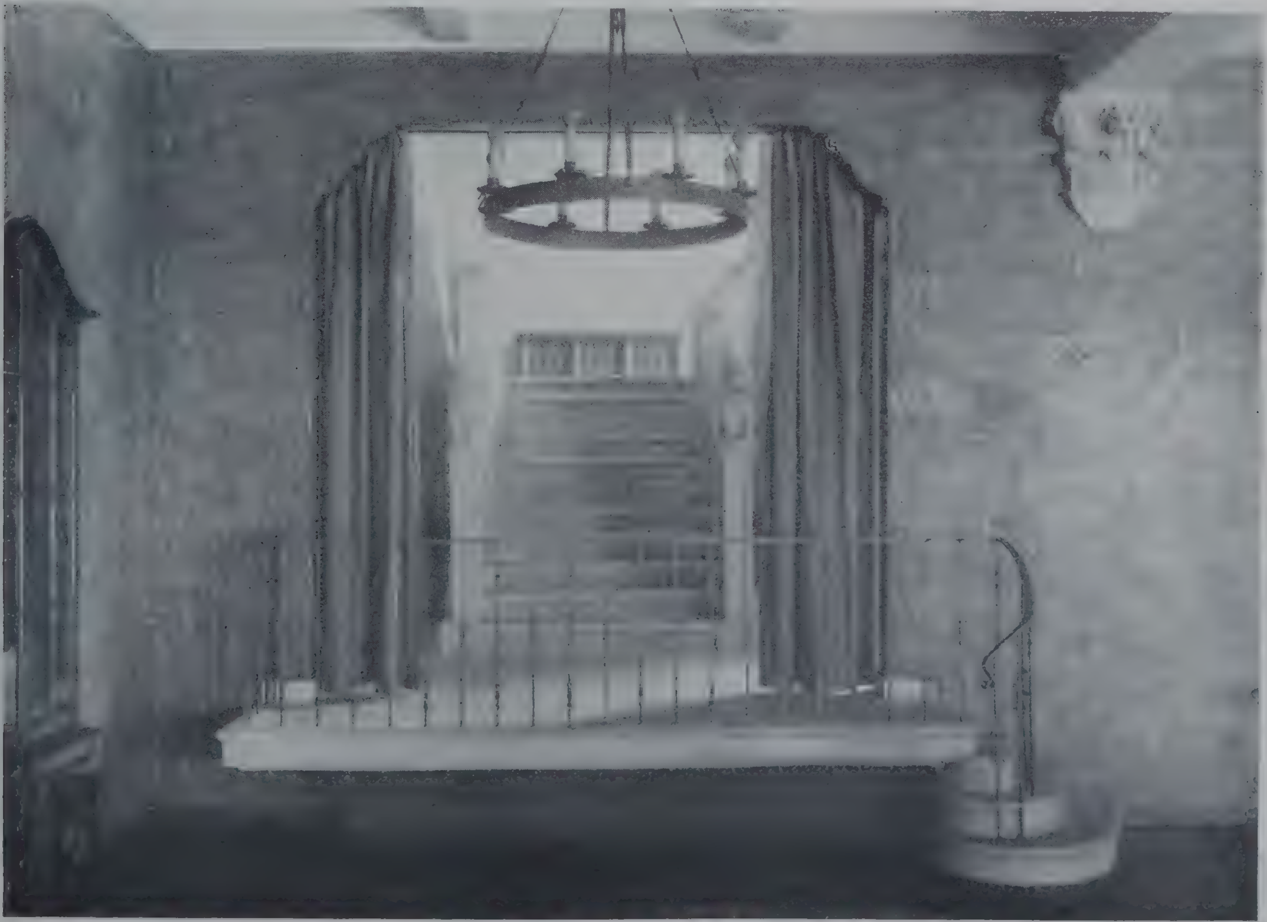


Clerk's Desk, Casa de Manana, La Jolla, Calif.
Edgar V. Ullrich, Architect

sun baths and an unrestricted view of the ocean at the same time. The use of these patios has helped make it possible to give every room in the house a sunny exposure for at least half the day, and balconies opening onto these secluded courtyards tempt visitors to step out of doors more frequently than they might otherwise do. Every room has a pleasant outlook, for as in most Spanish type houses, walls are used to do away with unattractive "back views." Instead of the ordinary square bedrooms, which are likely to be without originality or interest, the architect devised 49 different shapes for the 86 bedrooms of the Casa de Manana. Each has a different ceiling line, being incorporated into the roof line itself. Wardrobes instead of closets have been provided for the bedrooms, in many instances one being built in at each side of the window to give the effect of thick adobe walls, often found in Spanish houses.

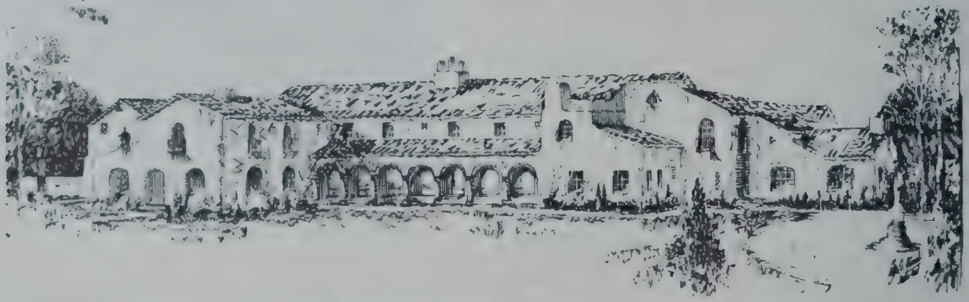
Among the interesting features of the main floor of the hotel might be mentioned the banquet room for private dinner parties and the "book nook." The architectural features for both of these rooms were copied from Spanish originals. The lobby, the main dining room, and the children's dining room are all more or less Spanish in general treatment, and the lounge is partly Spanish and partly Italian in effect. Since this room is frequently used for musical events, it is particularly fortunate that the arrangement of bays makes the acoustic properties of the


Detail, Window with Hood and Grille in Side Wall, Casa de Manana

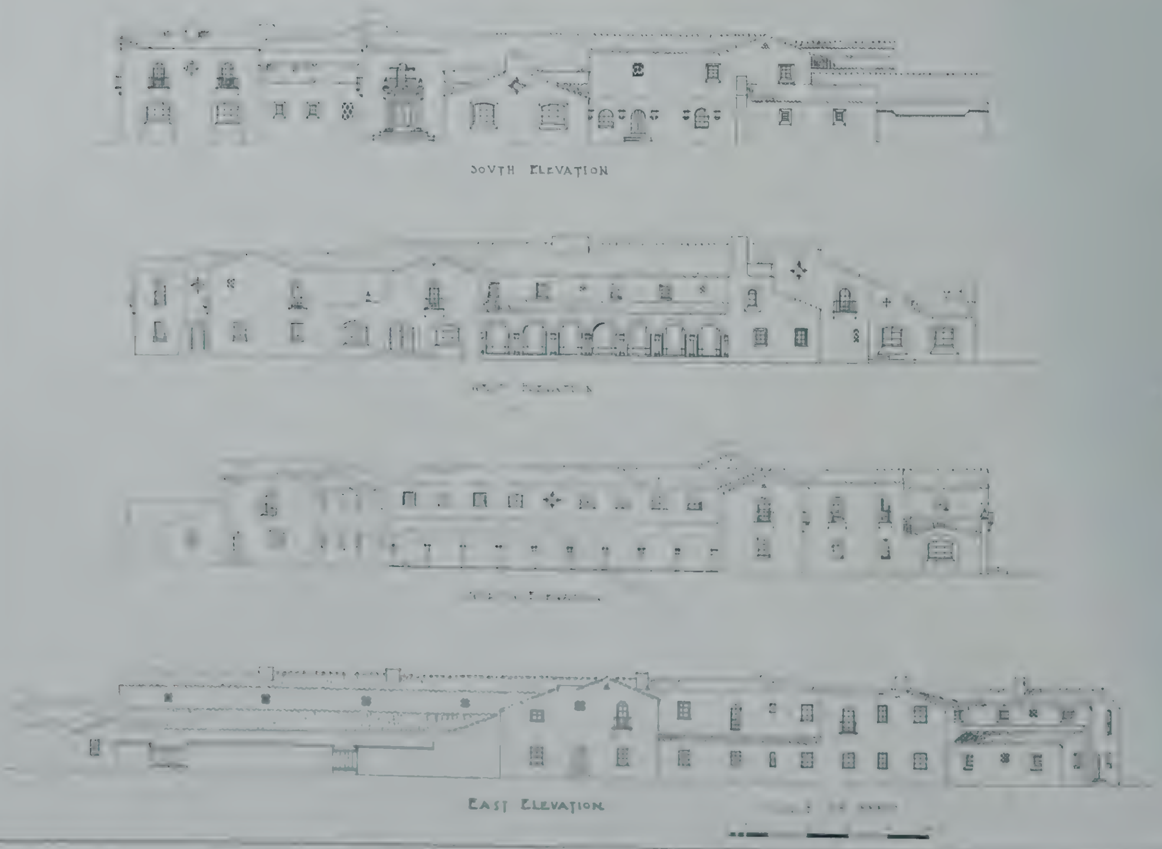

Main Stairway and Door to Living Room, Casa de Manana, La Jolla, Calif.
Edgar V. Ullrich, Architect

room unusually fine. Servants' quarters have been built around their own patio, with a continuous loggia. There is a separate service court, below the sidewalk level, where trucks can drive in and unload behind closed gates, without being seen from outside.

The architect has been complimented not only on the promptness with which the construction of the hotel was completed but also on its moderate cost. Ground was broken on October 17, 1923, and the building was completed in time for the opening on July 3, 1924. We understand that much money was saved by working on a "segregated contract" basis, a plan which involved the letting of 39 separate and distinct contracts. This type of contract, which is seldom used in the East, has many advantages over the single or general contract method of building. Each contractor, instead of being a sub-contractor, becomes in a way a general contractor himself, and takes much more interest in the speedy execution and quality of his part of the construction of the building. In hotel construction perhaps more than in any other type of building this method of segregating the contracts is most desirable and advantageous. The care taken in the construction and execution of the detail in the Casa de Manana gives an excellent object lesson in favor of this type of construction. The finish of the exterior stucco walls is an unusually fine example of an antique effect in cement wall surfacing. Details of the entrance door show unusual skill in the execution and setting. The same is true of the few other ornamental details, such as the balconies on the western wing of the structure. Combined with the picturesque design of the building, the fine quality of its construction makes of the Casa de Manana one of the best examples of the adapted Spanish architecture of the Pacific coast.



Architect's Sketch of the Western Elevation



Scale Elevations, Casa de Manana, La Jolla, Calif.
Edgar V. Ullrich, Architect

THE BUILDING SITUATION

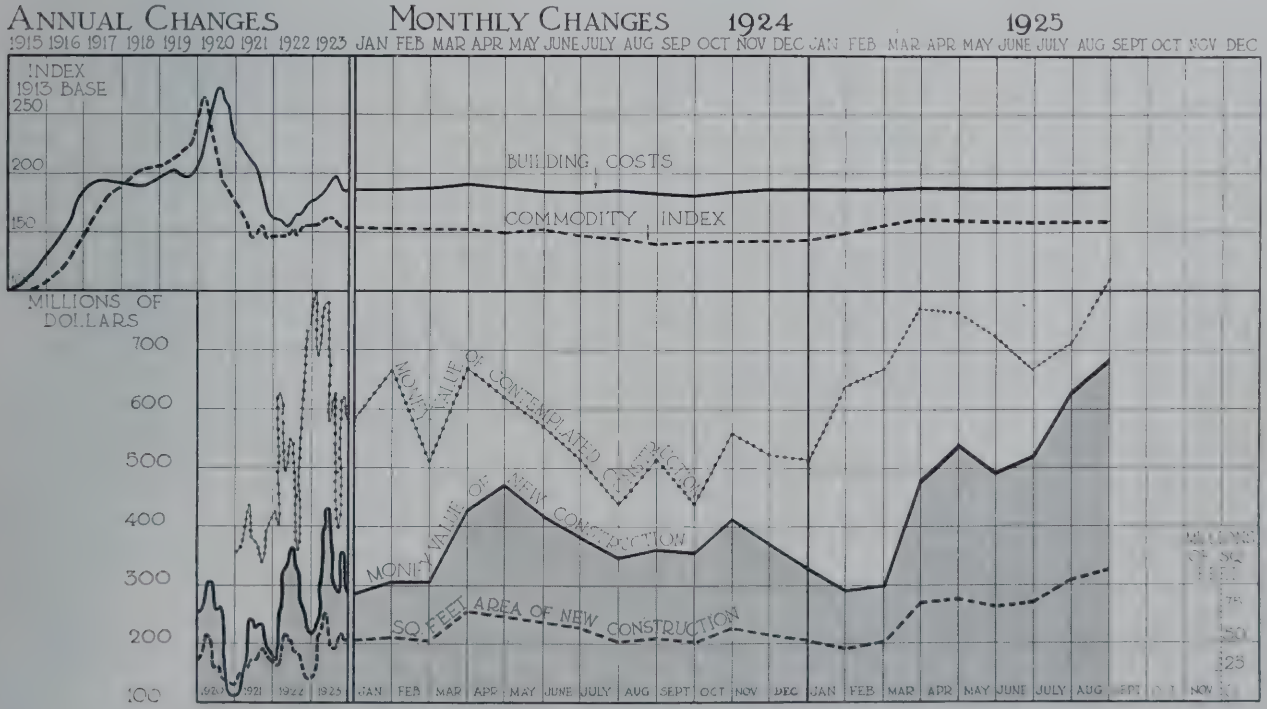
A MONTHLY REVIEW OF COSTS AND CONDITIONS

BEYOND all forecasts—beyond all expectations, and almost beyond belief—is the amazing volume of construction which has developed during the summer months as indicated here.

When THE ARCHITECTURAL FORUM'S Forecast of Building Construction for 1925 was published last January, it was confidently expected that this would prove to be another $5,000,000,000 year, but from all appearances the value of construction will go to beyond $6,000,000,000, an amount unprecedented in building history and probably not to be equaled for years to come. It is indeed an astonishing record.

All types of buildings have shared in this unusual volume, the greater contributions coming from the residential and commercial building fields. Perhaps the most amazing phase of this entire situation is the ease with which the building material manufacturing industry has responded to this tremendous demand and has shown its capacity for supplying and delivering materials without the irritating delays which in the past have characterized periods of unusual building activity. In spite of this great volume, most building operations are moving along smoothly and closely in accordance with time schedules as established by contractors. It may be said that the architectural profession owes a debt of gratitude to building material manufacturers, jobbers and dealers for their foresightedness and business acumen, which have resulted in the establishment of production and distribution facilities great enough to supply this tremendous demand without slowing down the industry or causing a sharp increase in prices which might serve to discourage the building public at a time when optimism is evident.

Considered as a whole, the labor situation is good. Certain of the labor unions have entered into jurisdictional disputes and factional squabbles, which from time to time have threatened or actually caused loss of time and money in building operations. This has been particularly true in the New York district, and it would appear to be a very stupid procedure on the part of organized labor to do otherwise than arbitrate such difficulties, or else to postpone settlement until such a time as the pay envelope is leaner.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined, first by the trend of building costs, and second, by the quality of construction.

Details of Boiler Equipment

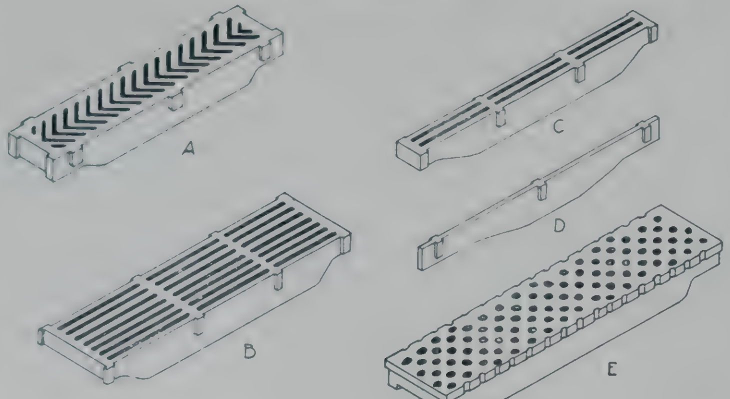


Fig. 25. Several Types of Stationary Crates

A herringbone grate is shown at A, and a straight-bar grate about 6 inches wide at B; a straight-bar grate about 3 inches wide is shown at C, and a single straight-bar grate at D. A perforated or pinhole grate for burning fine fuels is shown at E. The herringbone grate is for coal shavings; the straight-bar grates are for wood or coal, and the pinhole for sawdust.

A shaking and dumping grate is shown in Fig. 26. The width of the grate surface in all cases equals the width or diameter of the boiler. Grates are set with a pitch toward the bridge wall of not more than 1 inch in 1 foot of length. That is, in a firebox 6 feet long from front wall to bridge wall, the grates would be set not more than 6 inches lower at the bridge wall than at the dead plate line.

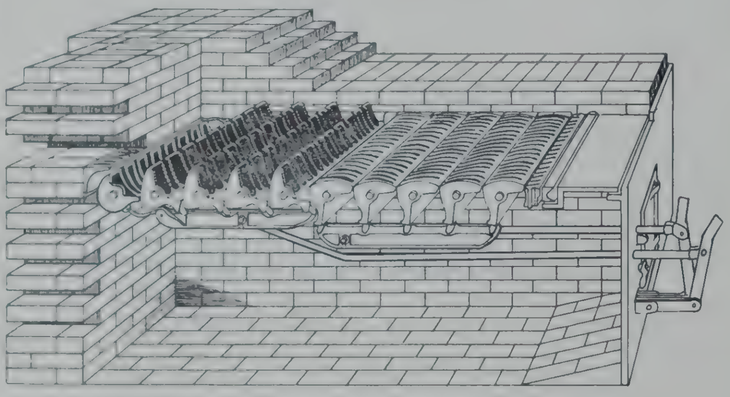


Fig. 26. A Shaking and Dumping Grate

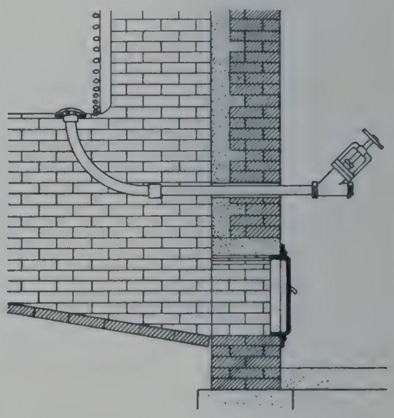


Fig. 27. Blowoff Pipe from a Tubular Boiler

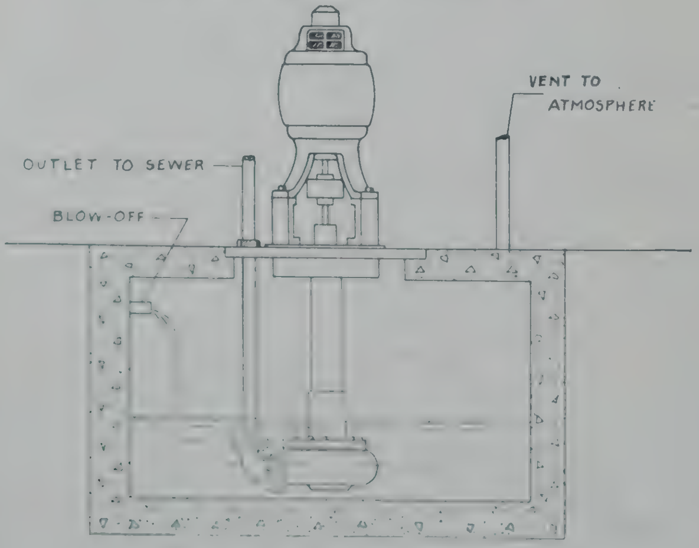


Fig. 28. One Type of Sump Pump

When the boiler is located at too low a level for gravity discharge to the sewer or other place of disposal, as for instance when in the sub-basement of a tall building, a sump must be built for the boiler to blow into. From this sump the water can be raised after it has cooled sufficiently. A relief pipe must extend from the sump to the atmosphere to allow the escape of steam and vapor, and to prevent pressure's forming in the sump. The discharge pipe from the sump must enter the sewer *outside* of the building line. In sumps that are very deep the thrust on the bottom bearing of the pump wears it out quite rapidly. In deep sumps, therefore, ejectors can be used to advantage, and they generally are used.

In water-tube boilers the blowoff pipe is usually so located that it is protected from the heat and flames of the combustion chamber. Return-tubular boilers are set with a slight pitch to the rear, where the boiler blowoff is located. In this location it is exposed to the blast effect of the flames and gas, from which it is protected by a V-shaped wall of fire brick. The blowoff pipe from a tubular boiler is shown in Fig. 27. Extra heavy pipe is used for the boiler blowoff, and a special extra heavy blowoff cock is required. For boilers which will carry pressures in excess of 125 pounds per square inch, two extra heavy valves or one valve and one cock must be used. On a boiler having two or more blowoff pipes, a single master valve may be placed on the common blowoff pipe from the boiler, and one additional valve on each branch from this pipe to the boiler. All fittings between the boiler and valve must be of steel. Globe valves are not permissible for blowoffs, even on low-pressure systems. It is always better, and some state laws require it, that the ends of the blowoff pipes be so located that leakage may be seen at all times. The advantage of this in operation is quite obvious.

ENGINEERING DEPARTMENT

Power and Heating Plants

THE GENERATING PLANT; BOILERS

By J. J. COSGROVE

EDITOR'S NOTE.—Earlier installments of this series of articles on "Power and Heating Plants" by Mr. Cosgrove appeared in THE ARCHITECTURAL FORUM for April and August, 1925. Other installments are presently to follow.

SUCCESSFUL boiler installations require the use of care in the choice of their details and the figuring of their sizes. So important is the use of correct sizes of all parts of boilers that the utmost care should be given to their specification.

Grates. Grate surface in power boilers averages from 4.5 to 5 square feet per rated horse power, 1 square foot of grate surface to 40 or 50 square feet of heating surface. This is based on the development of 1 horse power from 5 pounds of coal. When anthracite buckwheat is to be used, 1 square foot of grate surface will be required for from 35 to 40 square feet of heating surface. In large central plants with mechanical stokers the proportion is 1 square foot of grate to 60 of heating surface. Small, low-pressure steam boilers require about ½ square foot of grate surface to each 100 square feet of radiation; small hot water boilers about ⅓ square foot of grate surface to every 100 square feet of radiation.

The air spaces in grates average about one-half the total grate area. Theoretically, about 12 pounds of air are necessary for each pound of coal consumed. In practice, however, owing to the large amount of nitrogen in the air, variation in fuels, and the mechanical interference of clinkers and ashes which clog the grates and cannot be removed as soon as formed, from 50 to 100 per cent more air than the theoretical amount must be passed through the fire to maintain natural draft. This amounts to from 18 to 24 pounds of air per pound of coal, or from 236.5 to 315 cubic feet of air at 62° Fahr. and atmospheric pressure at sea level, which must pass up through the grates for each pound of coal consumed. Use of less air than is required results in imperfect combustion of the fuel and the formation of smoke. An excess of air cools the fire and boiler and carries away large quantities of heat in the gases, with consequent waste.

As fuels vary greatly in structure and burning characteristics, many types of grates have been designed to burn them. Several types of stationary grates are shown in Fig. 25, on the preceding page.

Bridge Walls. The bridge wall of a furnace is built 18 inches higher than the top surface of the grates, and the setting heights of horizontal tubular boilers are based on a requirement of a 25 per cent opening over the bridge wall for bituminous coal and 15 per cent for anthracite. That is, the top of the bridge wall is three-fourths of the distance from the floor line to the under side of the boiler shell. The fire side of the bridge wall is flared toward the combustion chamber to afford an easy and unimpeded passage for the flames and hot gases.

Ashpits. The ashpit for a hand-stoked furnace gives the best results when made large enough to receive the ashes from an 18- or 20-hour run. An ashpit of from 18 to 20 hours' capacity will take the ashes from the fuel burned during the night shift and still have room to protect the grates from the destructive action of accumulated ashes and clinkers. Also, it will permit the removal of the ashes during daytime. In practice, however, ashpits for hand-fired boilers seldom have capacities for more than 8 or 10 hours' run. Mechanical stoker installations generally have ashpit capacities of from 12 to 14 hours, which is usually satisfactory.

To determine the quantity of ashes to be cared for, multiply the percentage of ashes by the amount of coal consumed during the period the ashpit will not be emptied, then allow 50 per cent additional capacity so that the ashpit will not clog the grates and cause them to burn out. The ash percentages should be based on use of the *poorest* grade of coal likely to be burned. The percentage of ashes in anthracite will average about 18 per cent. In a large office building in New York the ash average for a series of years is given thus: 1916, percentage of ashes 16; 1917, percentage of ashes 18; and 1918, percentage of ashes 32. It will be well to note that the high percentage of 32 was during the war period, when the quality of coal was very poor.

There is about 14.5 percentage of ashes in the best grade of Lackawanna coal, and in the average steam coal the ashes will average 20 per cent. In some of the poorer grades it will average from 26 to 28 per cent. One cubic foot of ashes weighs approximately 40 pounds, which is about the weight of coal. To be exact, anthracite coal weighs about 50 pounds per cubic foot, and bituminous coal weighs 40 pounds per cubic foot. An ashpit must be accessible so that it can be easily cleaned, or the work is liable to be slighted. Fairly small pits are more easily cleaned than large; therefore, the practice is not to exceed 8 feet in length from the dead plate to the bridge wall. Space in which to work in front of the furnace is of equal importance. There must be sufficient distance between the two rows of boilers, or between the boiler front and wall, in which to handle hoe, rake, slice bar and shovel.

The usual size of blowoff pipe for tubular boilers is 1½ inches for boilers of up to 48 inches in diameter, 2 inches for boilers up to 60 inches in diameter, and 2½ inches for boilers of large diameters. The outlet from a boiler blowoff should be so located that steam or water cannot possibly injure anyone when the boiler is being blown off.

High-pressure boilers located above grade, except in country plants where they can blow into the atmosphere or a stream, may blow off into a cooling tank before discharging into the sewer, and the overflow connection from the tank should connect to the sewer outside of the foundation wall. This is a requirement in most cities. A blowoff tank is shown in Fig. 29. Water enters the condensing tank from the boiler. When released from pressure, some of the water instantly flashes into steam and escapes to the atmosphere through the vapor pipe. Hot water entering the tank causes cold water from the bottom of the tank to overflow to the house sewer outside of the main drain trap. An equalizing pipe admits air to the overflow pipe and thus prevents the water's being siphoned out of the tank.

Sizes of Blowoff Tanks. A blowoff tank should be large enough to hold one gauge of water from the steam boiler. In blowing off a steam boiler, one gauge of water is the most that would be blown off at one time, and if the tank is large enough to hold that quantity it will be sufficiently large for all purposes. The size of tank required can be found by multiplying the length of the steam boiler in feet by the diameter in feet and then multiplying the product by one-third (4 inches being considered the depth of one gauge of water). This product will be the capacity in cubic feet of the tank required.

Example: What capacity blowoff tank will be required for a steam boiler 18 feet long and 5 feet in diameter? This is an average sized boiler.

Solution: 18 x 5 x ⅓ = 30 cubic feet, and 30 x 7.5 = 225 gallons capacity. Such is the answer.

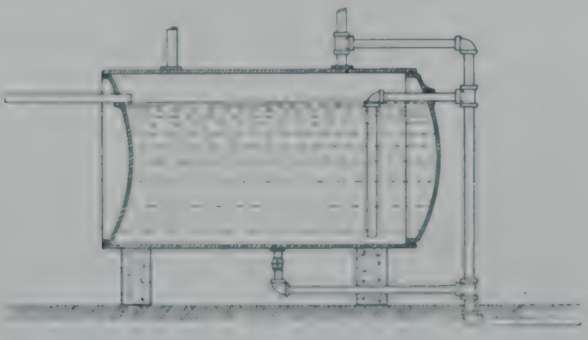


Fig. 29. A Blowoff Cooling Tank

Blowoff outlets to steam boilers are seldom over 2½ inches in diameter; therefore the inlets to blowoff tanks need not be over 3 inches, iron pipe size. The outlet, however, should be 3 or 4 inches in diameter, so that the water will enter the sewer at a low velocity. The vapor pipe should be at least 2 inches in diameter, and if it extends over 100 feet it should be 2½ inches in diameter. When several boilers are connected in battery, one blowoff tank will suffice for all, provided sufficient time is allowed between blowing off the several boilers for the water in the tank to cool, or if provision is made for cooling the hot water with feed water heating coils. Drips from high-pressure plants do not require a condensing tank but may connect to an atmospheric steam trap discharging into the house sewer outside of the main drain trap. Blowoffs from low-pressure boilers need not pass through either a condensing tank or a steam trap but may discharge freely into the house sewer outside of the main drain trap, if there is one, or into the house sewer where there is no main drain trap.

Disengaging Surface and Dry Pipes. Small steam boilers require about ½ square foot of disengaging surface for each 100 feet of direct radiation. That is, for each 100 square feet of direct radiation to be supplied there must be ½ square foot of water surface above the tubes in the boiler from which steam can be liberated. Small boilers also require about ½ cubic foot of steam space for each 100 feet of direct radiation. One square foot of boiler surface will supply boilers of from 7 to 10 square feet of direct radiation. This is found a fair average.

In power boilers it is the practice to provide a dry pipe in the top of a horizontal return-tubular boiler shell to insure dry steam's being delivered to the main. The term "dry steam" is relative, for even dry steam carries anywhere from 1½ to 3 per cent of moisture. A dry pipe with sheet metal wings is shown in Fig. 30. The dry pipe is fitted close to the top shell of the boiler inside, and the T-branch extends up into the steam-main nozzle.

Commercial Rating of Boilers. For convenience in comparing and selling boilers of similar designs, manufacturers rate them according to the heating surfaces they contain. Heating surface in this sense means the surface in the boiler shells or flues that is exposed to the direct heat of the flames and gases. For instance, the surface of the lower half of the shell of a horizontal return-tubular boiler, the two ends less the circles punched out for boiler flues, and the inner surface of the boiler flues totaled would represent the heating surface of that boiler. The surface of a tube exposed to the heat of flames or hot gas is the heating surface, while in a water-tube boiler the outside of the tube is the heating surface. The heating surfaces of boilers are not all of equal value, those exposed to the direct heat of flames and gas being the greatest, while fire tubes in return-tubular boilers have the least. In a water-tube boiler the surface is exposed more equally than in a horizontal return-tubular boiler, so it has a higher rating.

In horizontal return-tubular boilers the proportion of flue surface exceeds that of the direct-fire surface. This proportion will run anywhere from one of fire surface to three of flue surface down to two of fire surface to one of flue surface. The best proportion for boilers is one-third flue to two-thirds fire surface. The heating value of return-tubular boilers, having various ratios of fire surface to flue surface, can be found in Table III. Manufacturers base their ratings on 10 square feet of heating surface per boiler horse power for horizontal return-tubular and water-tube boilers, and 8½ square feet of heating surface per boiler horse power for Scotch marine boilers, which are sometimes used.

TABLE III

Heating Value of Boiler Surface

Ratio of fire to flue surface	Units absorbed per square foot heating surface per hour
1 to 3	2,000
1 to 2	2,200
1 to 1	2,400
1½ to 1	2,600
2 to 1	2,800

Capacity of a Boiler. The manufacturers' rating of boilers is what is known as the *rated* horse power of boilers, and must not be confused with the *developed* or *actual* horse power, which means the actual horse power developed when operated anywhere from rated capacity to 300 per cent over capacity or more, as many boilers are. The rated horse power is a fixed unit. The actual or developed horse power is a variable quantity. A developed horse power is equal to the evaporation of 34.5 pounds of water per hour from and at 212° Fahr. That is, assuming the feed water to be at a temperature of 212°, 1 boiler horse power will evaporate 34.5 pounds of that water to steam at atmospheric pressure, sea level, or steam at 212° temperature. According to the A. S. M. E. standards, 970 heat units are absorbed in vaporizing one pound of water from and at 212°, therefore 1 boiler horse power is equal to 34.5 x 970 or 33,465 B.t.u. It will be observed that developed horse power is more dependent on heat than surface. It is a measured of evaporation, not of extent. The capacity of a boiler means the total amount of water it will evaporate from and at 212°, or the total boiler horse power it will produce. This, as has been said already, is a variable quantity for the reason that the rate of evaporation per unit of surface will depend upon the fuel used and the method of firing. For instance, under natural draft, hand firing evaporates from 6½ to 8 pounds of water per pound of coal, or about 1 pound of coal to each gallon of water. Stoker firing evaporates 9 to 10½ pounds of water per hour per pound of coal, and oil firing evaporates 15.5 pounds of water per pound of oil. Experience proves this an average.

Then too, the use of forced draft changes the capacity of a boiler. Under natural draft, 1 square foot of grate surface will consume on an average from 10 to 12 pounds of hard coal or from 18 to 20 pounds of soft coal per hour. Under forced draft those quantities can be almost doubled. From what has already been said, it will be seen that a hand-fired boiler using natural draft could be made to evaporate approximately three times as much water from and at 212°, thereby adding that much to the boiler horse power merely by fitting it with mechanical stokers and forced draft. It follows as a natural consequence that a hand-fired, natural draft power plant which is not developing sufficient power can often be brought up to delivering the required horse power by equipping it with forced draft, mechanical stokers, a combination of the two, or else by use of gas or oil for fuel. In a cast iron sectional house heating boiler, the coal burned per square foot of grate surface will average from 2 to 3 pounds per hour during the day during normal winter weather.

Boiler Overloads. In practice, boilers often operate continuously at capacities of from 150 to 200 per cent over their ratings, and for short periods 400 and even 500 per cent overloads have been reached. This means that a boiler has been rated to develop 1 horse power for every 10 feet of heating surface when hand fired and burning about 5 pounds of coal per hour per square foot of grate surface. In use, however, it is fired automatically, using gas, oil, pulverized coal, or mechanical stokers and forced draft, and is simply developing the horse power it should under the circumstances, evaporating an amount of water corresponding to the kind and amount of fuel burned. In that sense it is in no way an "overload" as the term is commonly used, although overload is the technical expression obtaining in the engineering profession to indicate a boiler operating at a rate greater than its rated capacity. In the common acceptance of the term, it would imply that the boiler is being taxed beyond what the manufacturer believed was safe or what it should perform. "Overloading" does not materially shorten the life of a boiler. Under average conditions the age limit of a lap seam, horizontal, return-tubular boiler over 36 inches in diameter carrying over 50 pounds pressure but less than 100 pounds is approximately 20 years. When carrying over 100 pounds pressure, the life is shortened to

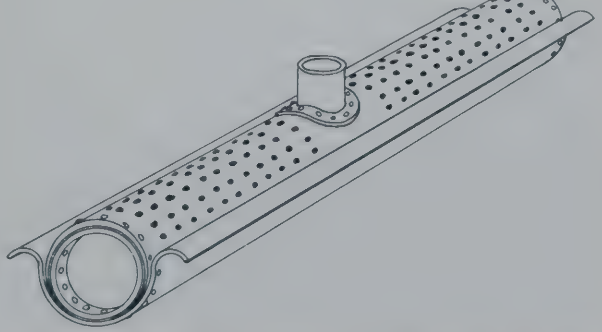


Fig. 30. Dry Steam Pipe with Sheet Metal Wings

from 15 to 18 years, or perhaps about 10 per cent.

Efficiency of a Boiler. This means the ratio of heat absorbed in the generation of steam to the total amount of heat in the fuel consumed. When coal is used, it is impossible to release all the heat stored up in the fuel. A portion of the coal will fall through the grates or in other ways remain unconsumed and is lost so far as supplying heat to the boiler is concerned. In computing efficiency it would be unfair to charge the boiler with failure to make steam from coal that is not consumed. On the other hand, the fuel must be paid for, and so its value is a proper charge against the boiler as a unit. That is, the efficiency of the boiler unit, consisting of boiler, furnace, stack and grates, is equal to the value of the heat absorbed by the boiler per pound of fuel stoked divided by the heat value per pound of fuel. This is the method of reckoning.

The efficiency of a boiler is extremely variable. In the first place, while the "efficiency" of a boiler is generally spoken of, what is really meant is the *overall* efficiency of boiler, stacks and blower. The overall efficiency of a boiler depends upon the kind of fuel used, the operating crew, the capacity developed, and the quality of fuel. With oil for a fuel, for instance, an efficiency 10 per cent greater than with coal can probably be obtained in practice, but conversely, if the oil firing is not properly handled it can be made less efficient than when coal is used.

The efficiencies given for boilers are generally overall test efficiencies, which are useful for comparison as to the possibilities with use of different boilers, different settings or different fuels. They do not express, however, the actual, everyday performance of the boilers in operation. Overall test efficiencies for boilers burning oil, for example, will run as high as 83 per cent. Deducting 2 per cent for the steam used for atomizing, this leaves a net test efficiency of 81 per cent for large boilers of from 200 to 500 horse power. In a large, well handled plant the daily average output might show an efficiency as high as from 76 to 78 per cent. In average, ordinary practice, however, with all kinds of settings and all sizes of boilers, it is probable that the efficiency will vary from 70 to 75 per cent.

The highest efficiency obtained from coal under test conditions was 82 per cent. In a large, well operated steam plant the overall efficiency obtained might average 70 per cent. Under test conditions the efficiency has been as low as 50 per cent, and in practice the efficiency will probably vary from 60 to 70 per cent. The average efficiency of water-tube boilers may be taken as 70 per cent, and this seems to be independent of whether the furnace is hand stoked or mechanically stoked, or the kind of coal used. This average is the result of experience.

Forcing a boiler beyond its rated capacity reduces its efficiency; 225 per cent of rating for a boiler is beyond economical operation. In some cases, particularly in the operation of a plant, the efficiency up to a certain point will increase with an increase of capacity. At 100 per cent rating, however, capacity begins to be at the cost of efficiency. From that point on the efficiency falls, slightly at first, but more rapidly after 150 per cent rating has been passed. In Fig. 31 can be seen an efficiency graph compiled from numerous tests of boilers.

Notwithstanding the fact that efficiency falls off with increases of rating, it is often really economical to operate continuously with overloads of 125 to 150 per cent ratings; for a 10- or 12-hour period at 130 to 175 per cent rating, and in some cases it is found economical to operate at as high as 300 per cent rating. Each case must be considered in the light of existing circumstances to determine whether it is better engineering practice to operate at high overloads or to put in extra boilers, which will probably lie idle much of the time; and the cases differ.

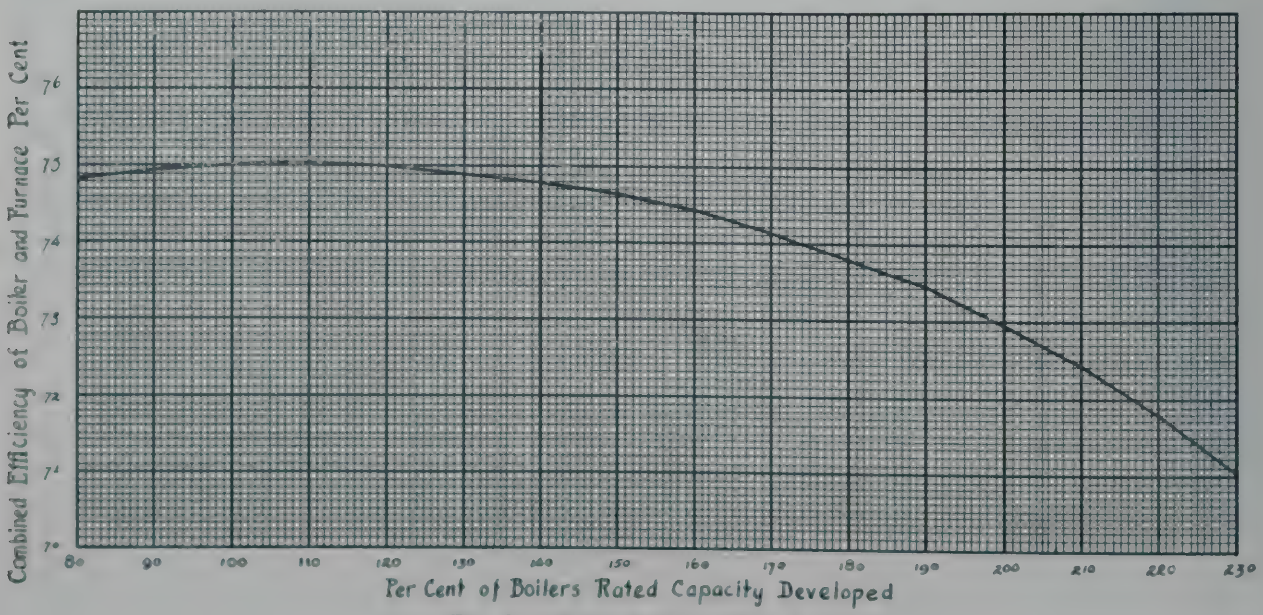


Fig. 31. Boiler Efficiency Graph

The House of Charles Forman, Esq., Winnetka, Ill.

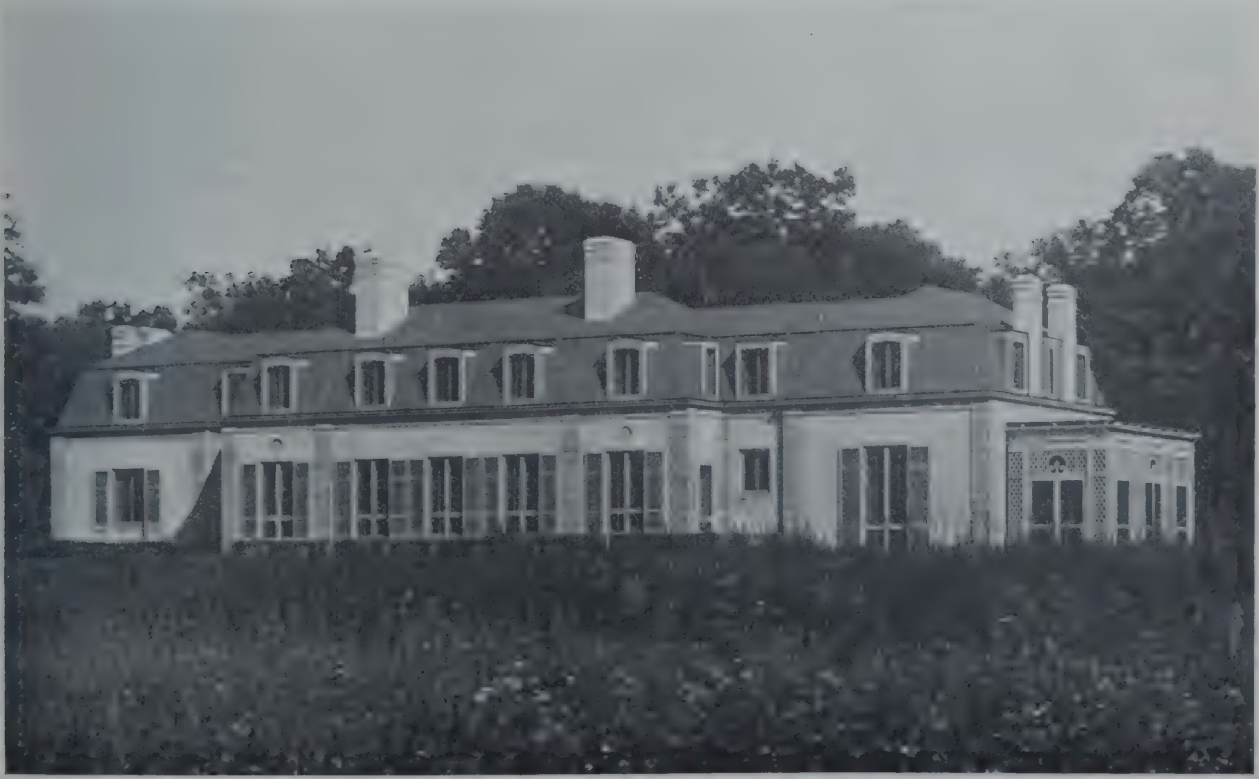
EDMUND B. GILCHRIST, Architect

THE change which came over the planning of the French house in the early part of the eighteenth century gives a starting point for the development of the modern American house plan.

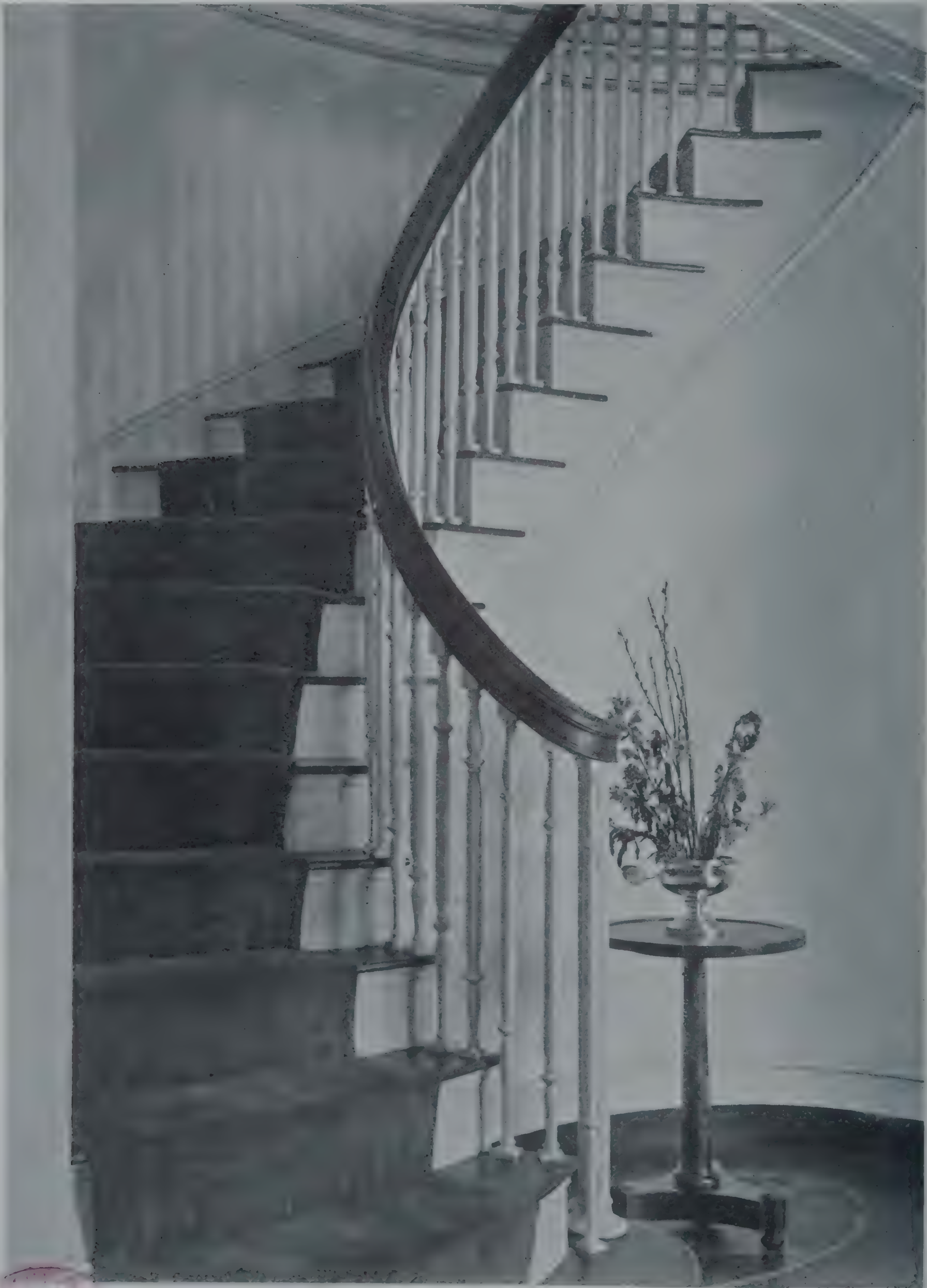
Before the death of the great Louis the emphasis in planning had been placed less upon convenience of access and circulation than upon effectiveness of vistas and impressiveness of size. The cold formality of the seventeenth century had its reaction in the eighteenth, when with the death of Louis and the beginning of the period of the regency the restraint of court formality was promptly removed. This affected at once the houses of the nobility as well as those of the upper *bourgeoisie*. Comfort and privacy were required, and comfort and intimacy of atmosphere were created, all in response to the demands of the social life of the times. Then began that effort toward convenient and thoughtful planning in which the requirements of comfort and beauty were harmonized with amazing skill by architects whose intellectual endowments equaled their æsthetic perceptions. The privacy so necessary to a continuance of the life of the aristocracy brought about the introduction of smaller rooms for general use; it relegated into the discard the long series of rooms *en suite,* and substituted corridors and hallways which gave the necessary circulation without destroying the privacy of any room; service hallways and staircases took their proper places, enabling the domestic staff to preserve a discreet invisibility. These and many other innovations came to quicken the architecture of the seventeenth century, almost moribund from over-indulgence in splendor and decorative extravagance.

All of the innovations of this time, so frequently dictated by necessities which originated in methods of living, led to that school of planning which today dominates the world of architecture. The requirements of domestic comfort, of sweetness and light, are just as powerful to influence the modern plan as were the different influences of two centuries ago. A house conceived in the spirit of the small French house of the well-to-do *bourgeoisie* is that designed by Edmund B. Gilchrist for Charles Forman, Esq., at Winnetka. The general plan around an entrance courtyard, the contrast between the entrance elevation in its balanced formality and the sunny garden front, the play of axial composition, all carry the conviction of the Gallic inspiration, even without reference to the style in which the plan is interpreted. In elevation this style presents a simple rendition of the later seventeenth century vernacular, beautifully felt and consistently scaled. Cut stone and stucco combine in the re-creation of the old textures; the detail is restrained and unified to a degree. There is no lack of variety in the scheme, although consistency has been very carefully preserved throughout.

Here is an example of a house thoughtfully planned for the utmost convenience of operation, with



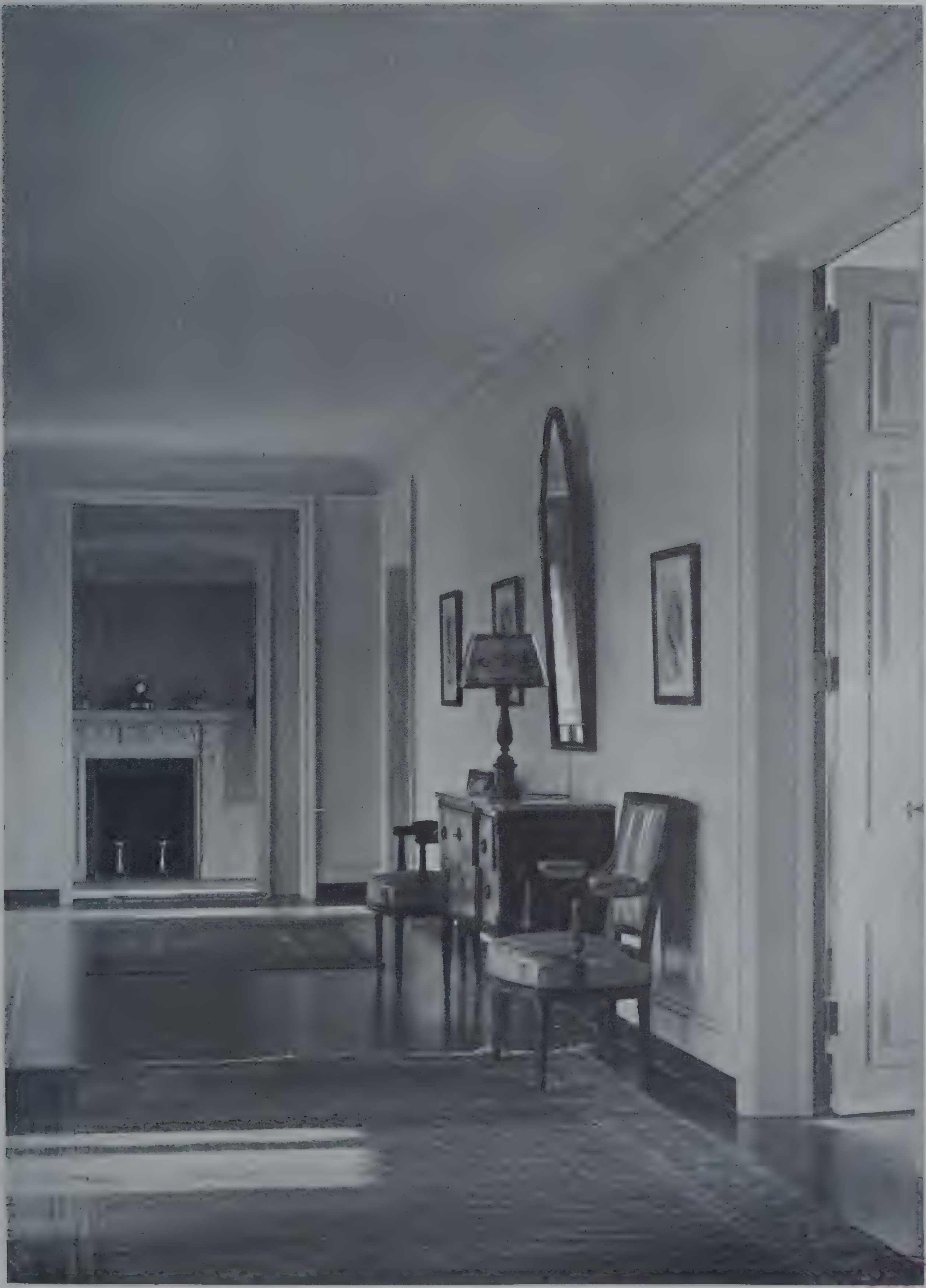
West Elevation and Terrace, House of Charles Forman, Esq., Winnetka, Ill.



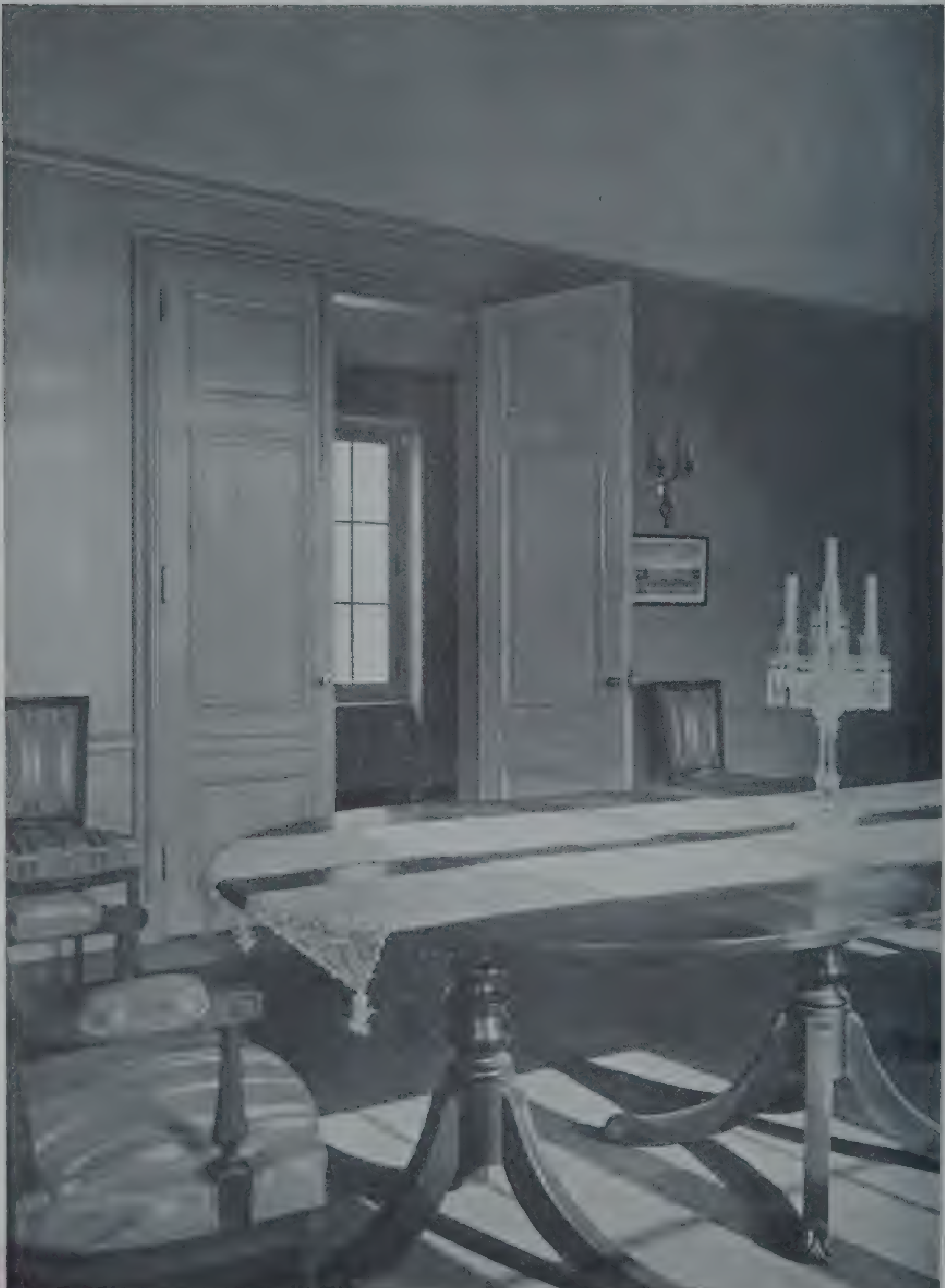
DETAIL, MAIN STAIRWAY

HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.

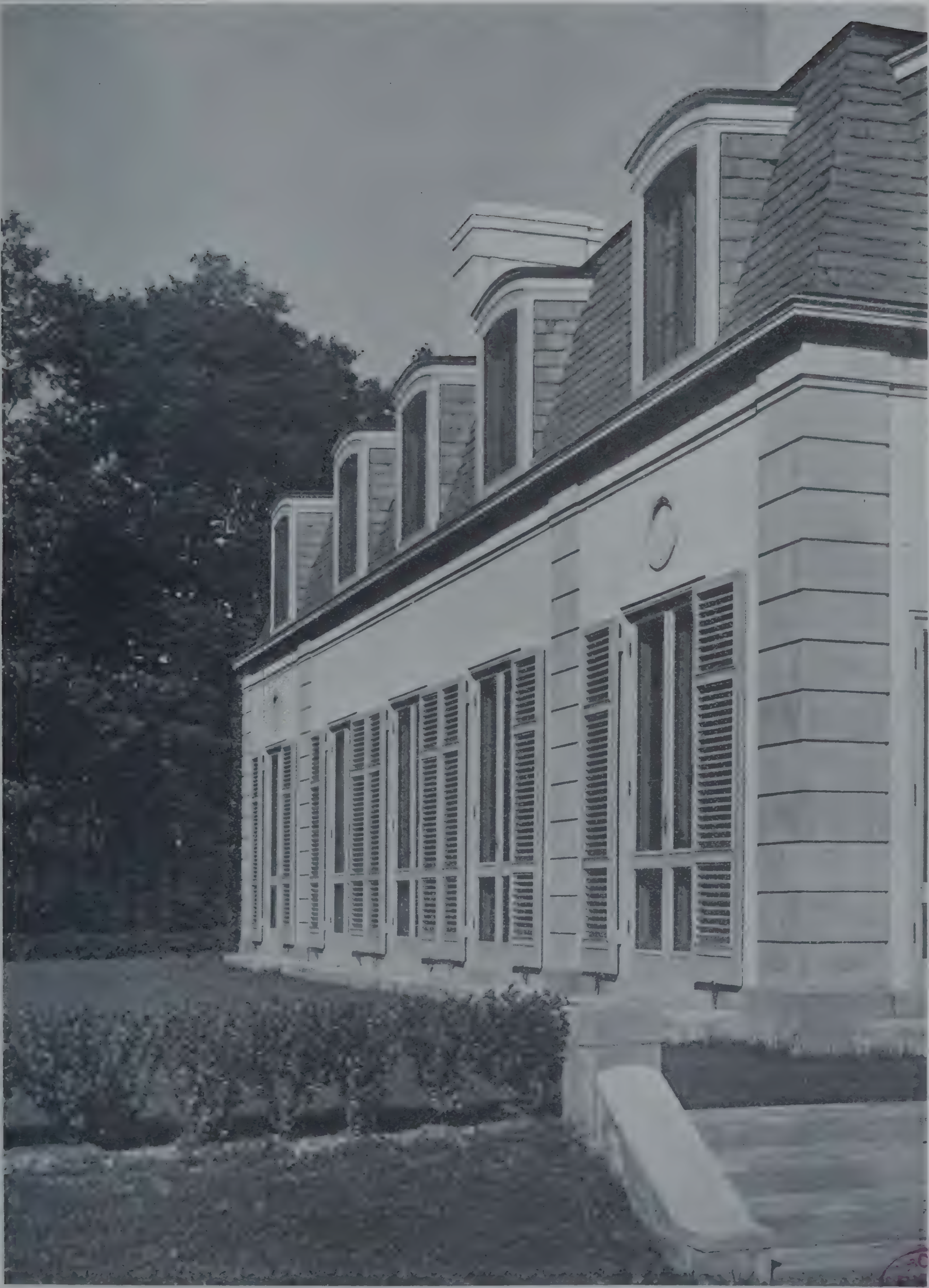
EDMUND B GILCHRIST, ARCHITECT



DETAIL, MAIN HALL
HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.
EDMUND B. GILCHRIST, ARCHITECT



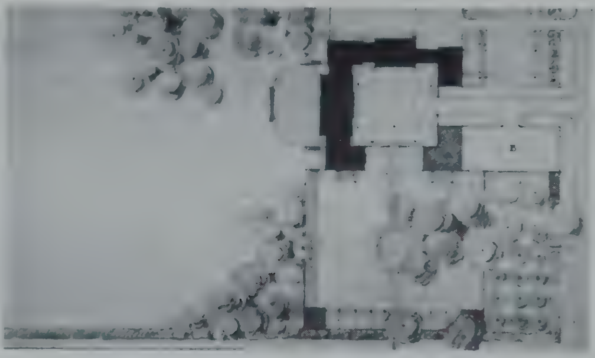
DETAIL, DINING ROOM
HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.
EDMUND B. GILCHRIST, ARCHITECT



WEST ELEVATION

HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.

EDMUND B. GILCHRIST, ARCHITECT

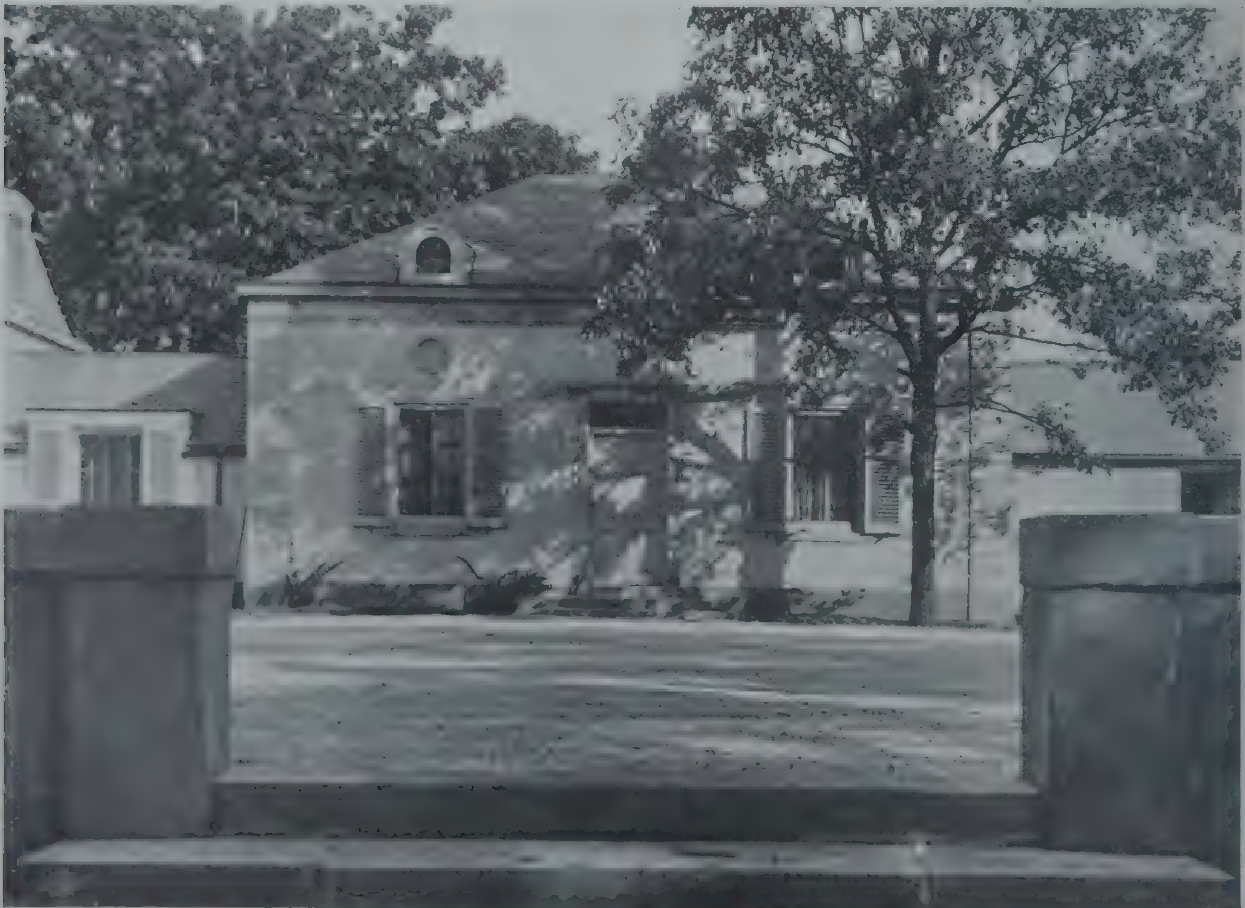


Plot Plan of the Estate of Charles Forman, Esq., Winnetka, Ill.

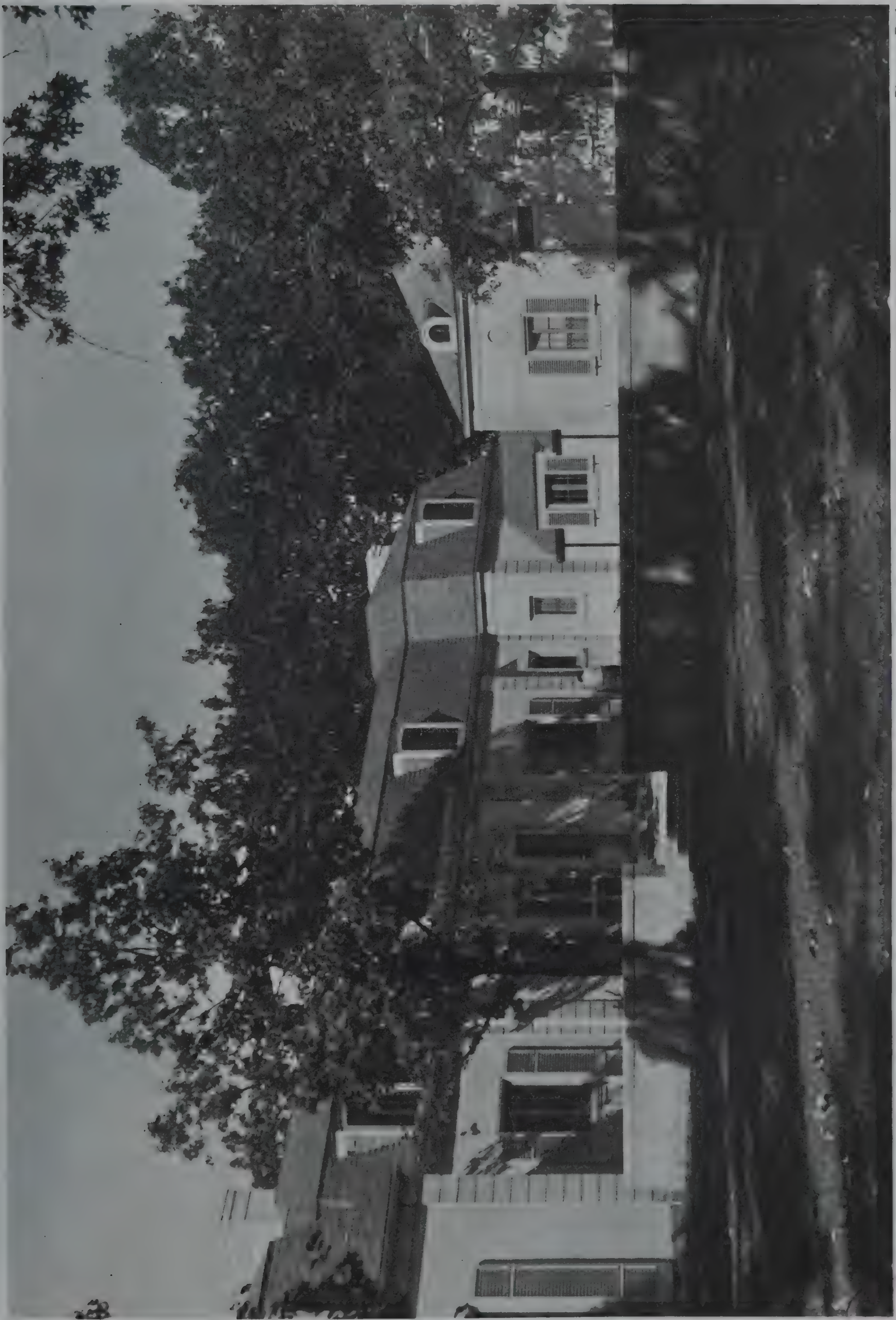
the service elements very carefully united to the living quarters, all expressed in definitely stylistic terms. There has been avoided that pitfall for the architect who works in an ancient style, —the likelihood of forcing a plan to fit an exterior. Here the exterior expresses the plan, and the result is a pleasant variation of roof lines, of groupings of smaller elements, and a picturesqueness which, though inherent in the style, seldom found such pleasing expression in its original use. The effect of a dominating lower story adds to the picturesque appearance, and at the same time it sets quite a difficult problem of scale.

The interiors possess the charm of simplicity imbued with the delicate sophistication of the time of Louis XVI, but without much of the ornament which was frequently found. A fortunate lack of archæological precision gives the rooms and gallery a free spirit, which is so generalized as to form a background for a variety of furnishings. In this house there could be used with equal appropriateness the French styles of Louis XVI, Directoire and Empire; English Hepplewhite or Sheraton; or the American types of the late eighteenth and early nineteenth centuries. The same feeling which characterizes these furniture forms,—the classic revival of the latter part of the eighteenth century,—is the basis of the interior architecture of this charming house. The absence of conventional ornament and the use of beautiful run mouldings give proper neutrality as a background to the walls as a setting for furniture.

There is little that we can say in criticism of the house, and much in appreciation. Perhaps its greatest achievement is its possession of reality, its lack of that all too usual effect in new houses which suggests that a *tour de force* has been accomplished. Here is a homelike place, implying by historic suggestion and dramatic contrasts the tastes and interests of its owner, and securing this is truly an achievement. A definitely continental character is given by the double doors and well chosen hardware, details which strengthen the character of a highly distinguished structure, of a type not frequently seen.

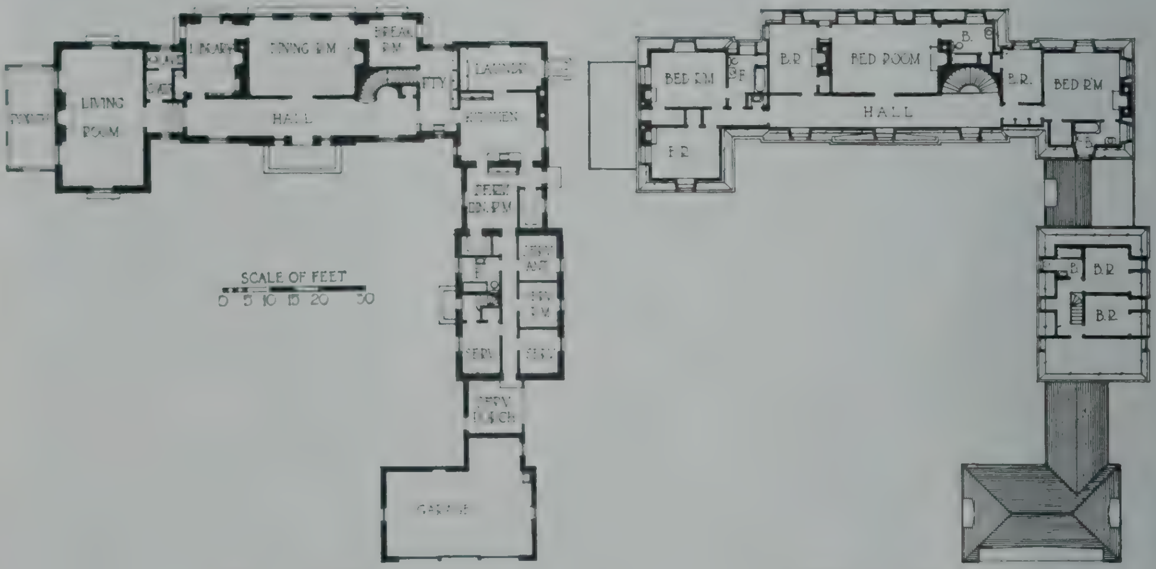


Servants' Building Across Forecourt, House of Charles Forman, Esq., Winnetka, Ill.
Edmund B. Gilchrist, Architect



Plans on Back

ENTRANCE COURT, HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.
EDMUND B. GILCHRIST, ARCHITECT

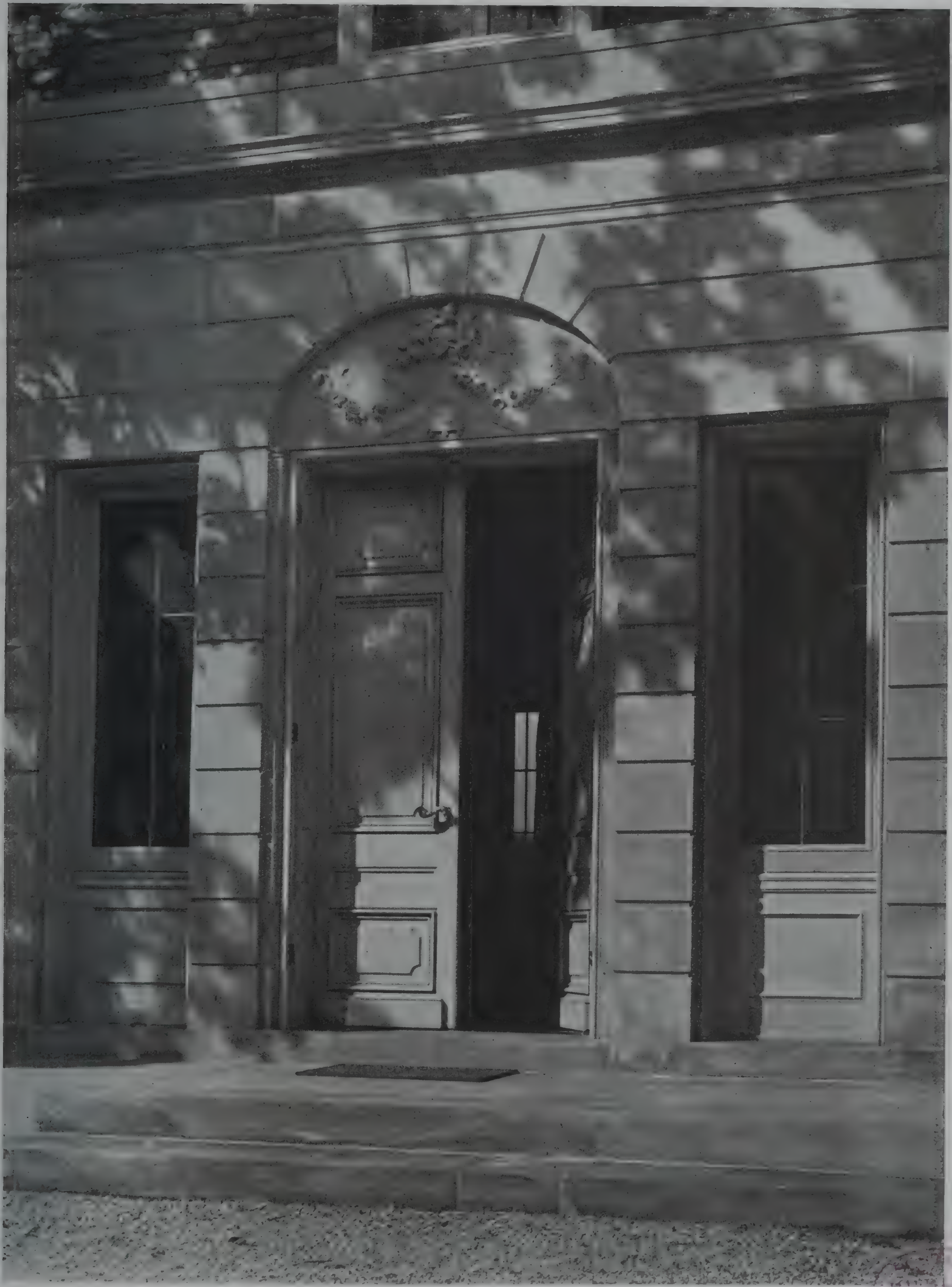


FIRST FLOOR

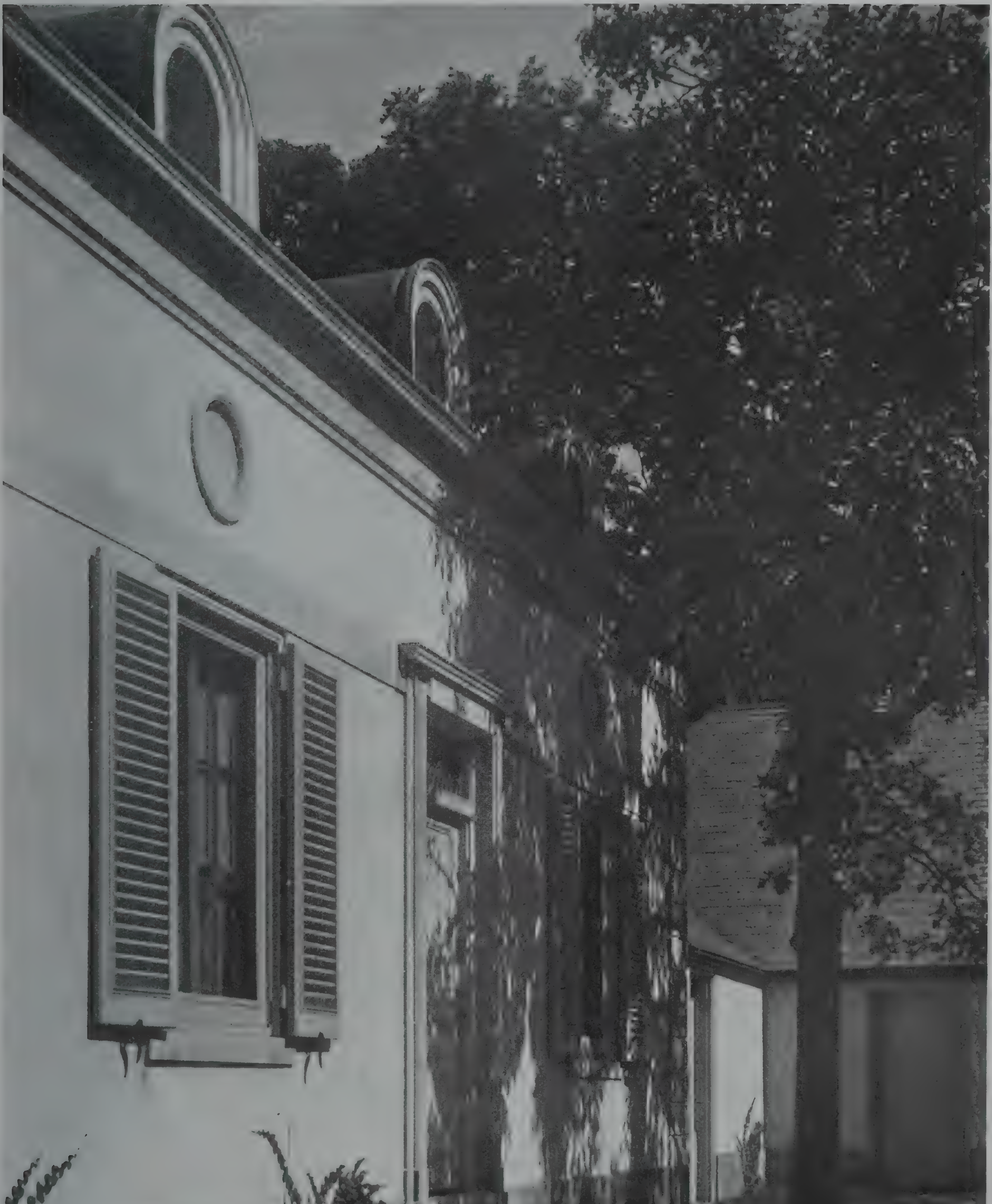
SECOND FLOOR

PLANS, HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.

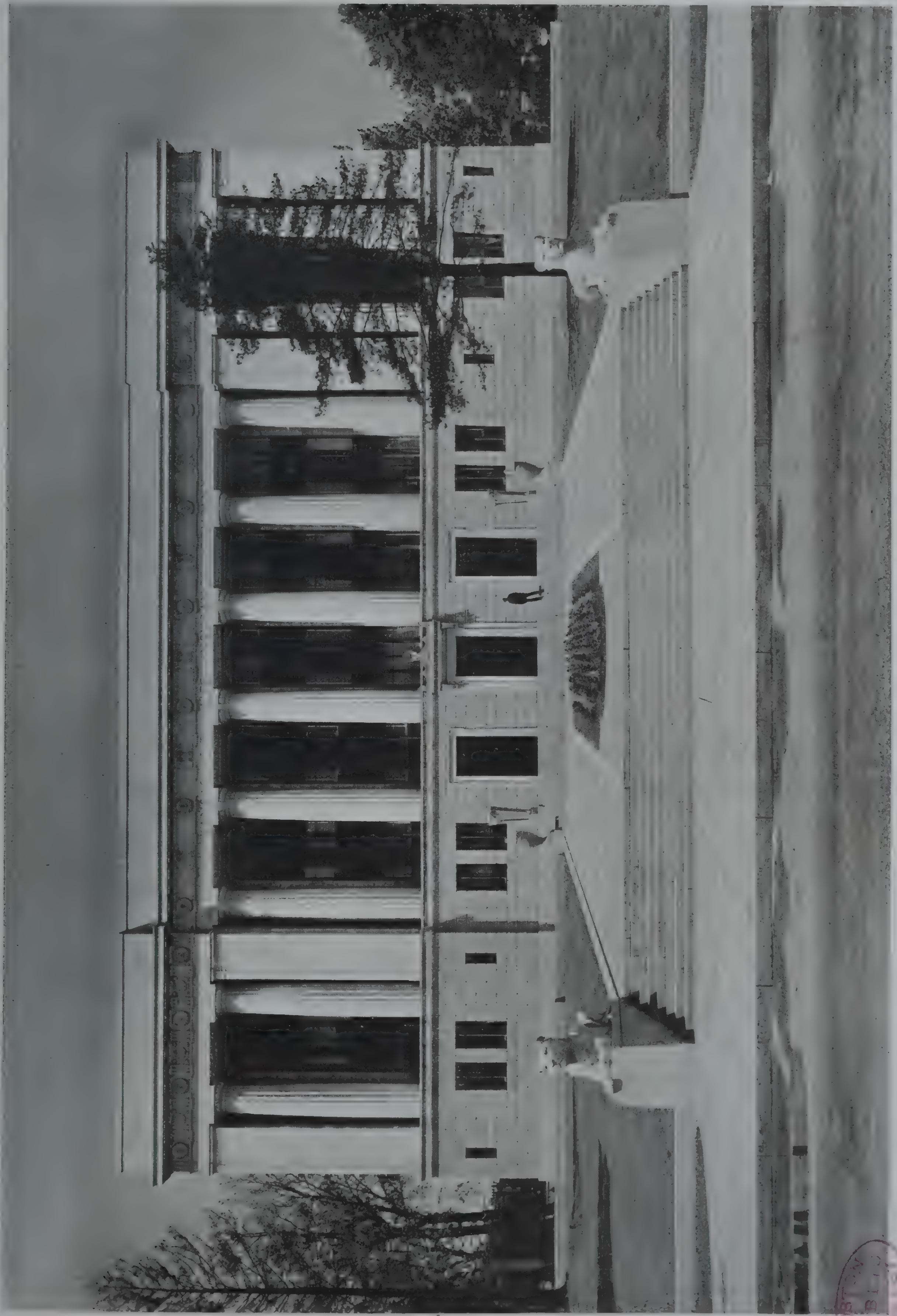
EDMUND B. GILCHRIST, ARCHITECT



DETAIL, ENTRANCE DOOR, HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.
EDMUND B. GILCHRIST, ARCHITECT



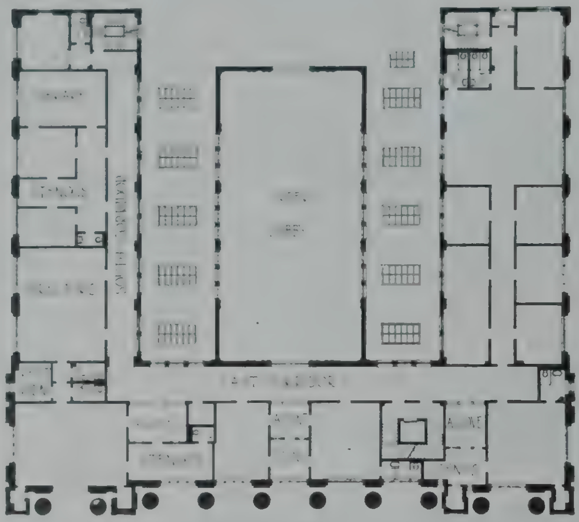
DETAIL, SERVANTS' QUARTERS, HOUSE OF CHARLES FORMAN, ESQ., WINNETKA, ILL.
EDMUND B. GILCHRIST, ARCHITECT



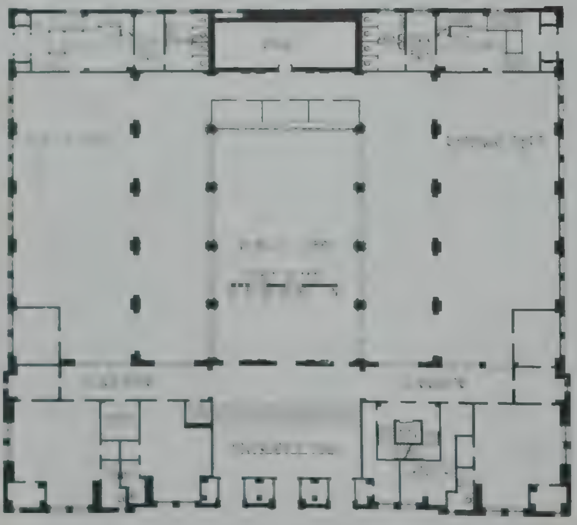
Plans on Back

KANSAS CITY LIFE INSURANCE COMPANY BUILDING
WIGHT & WIGHT, ARCHITECTS

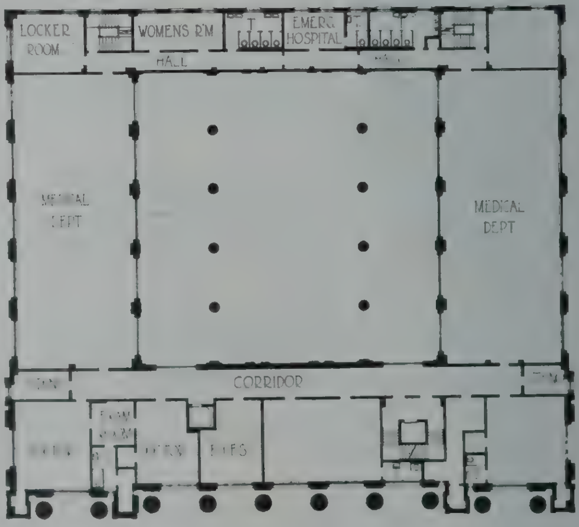
BOSTON PUBLIC LIBRARY



THIRD FLOOR



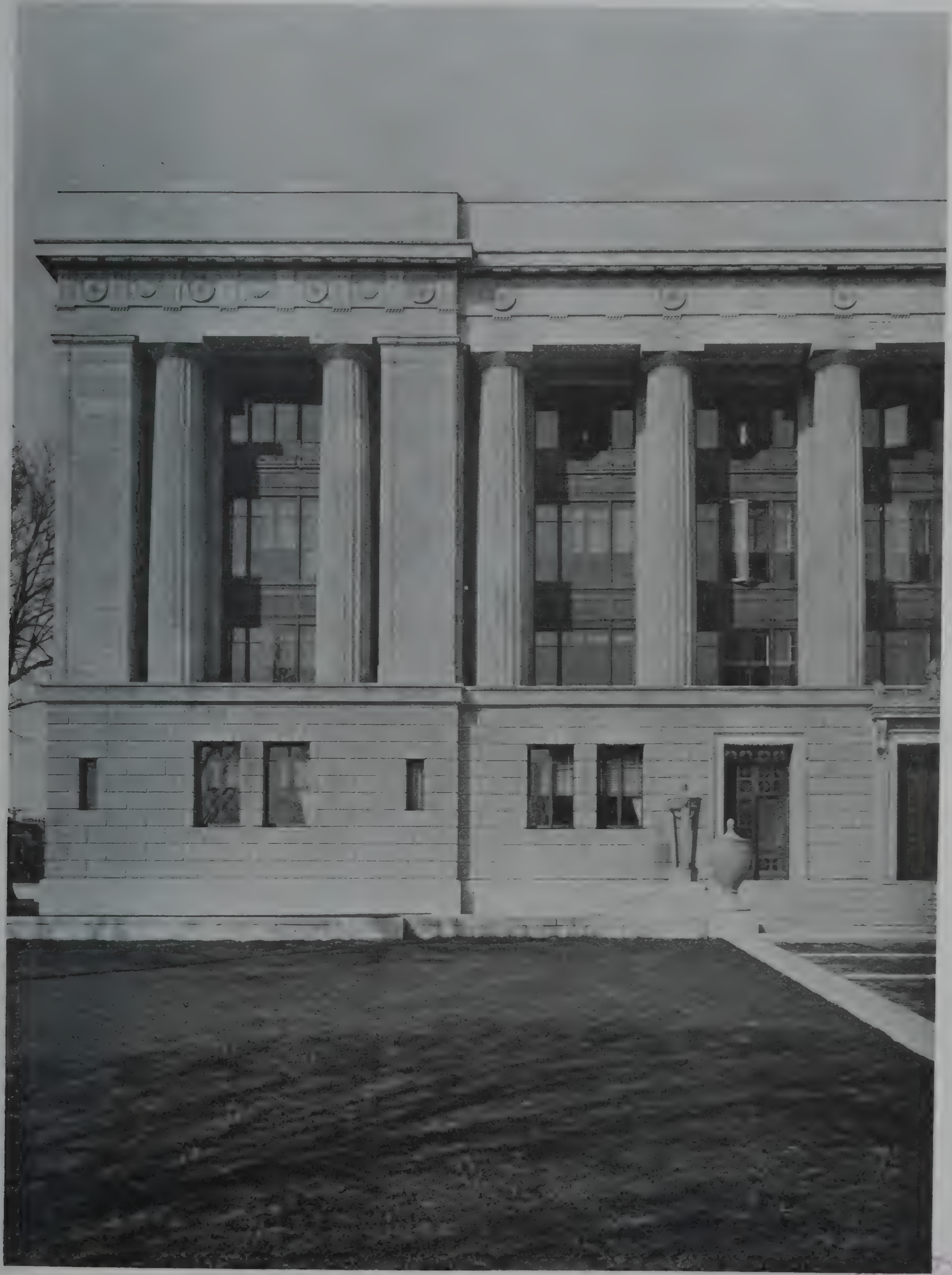
FIRST FLOOR



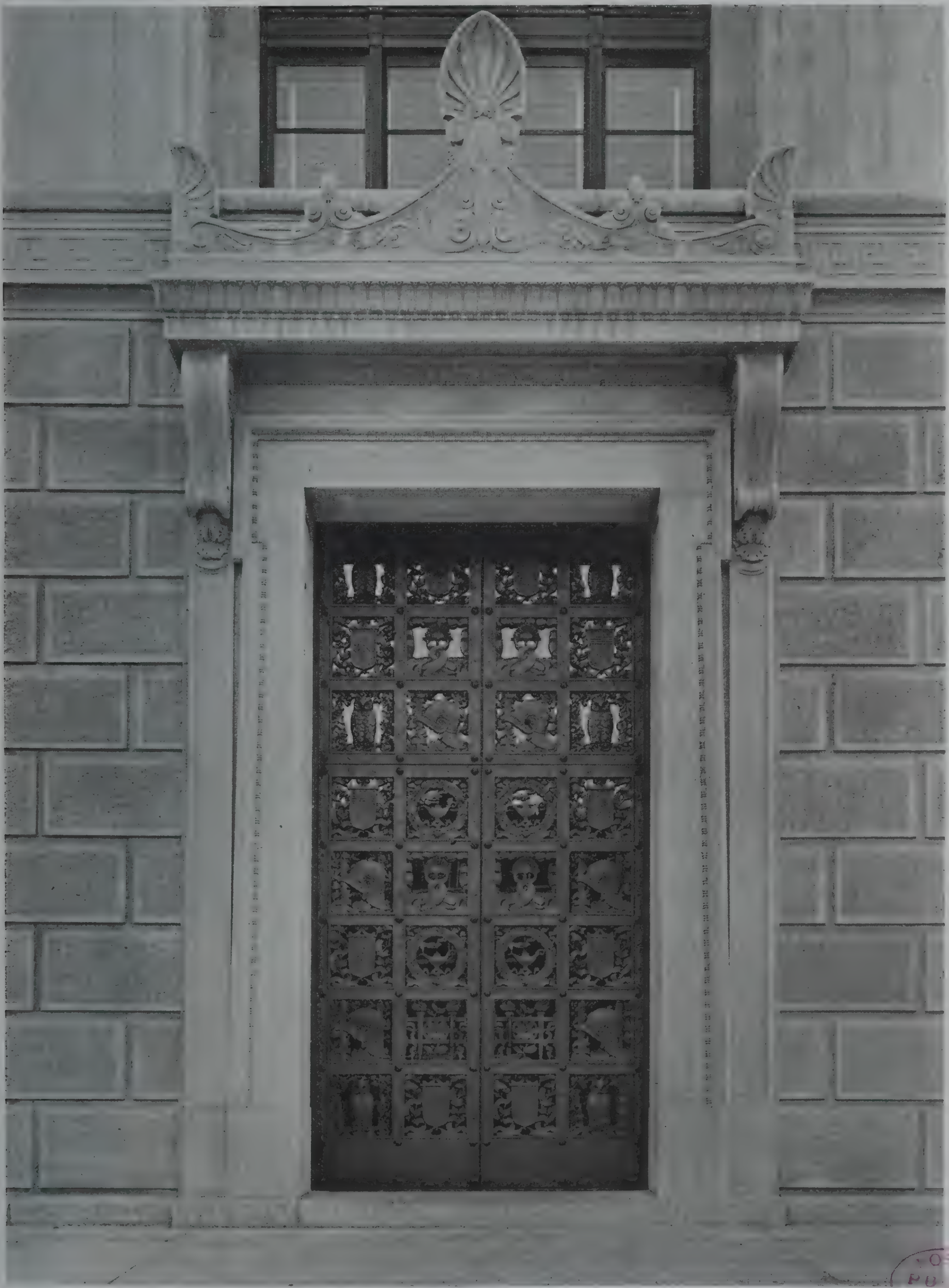
SECOND FLOOR

PLANS, KANSAS CITY LIFE INSURANCE COMPANY BUILDING

WIGHT & WIGHT, ARCHITECTS

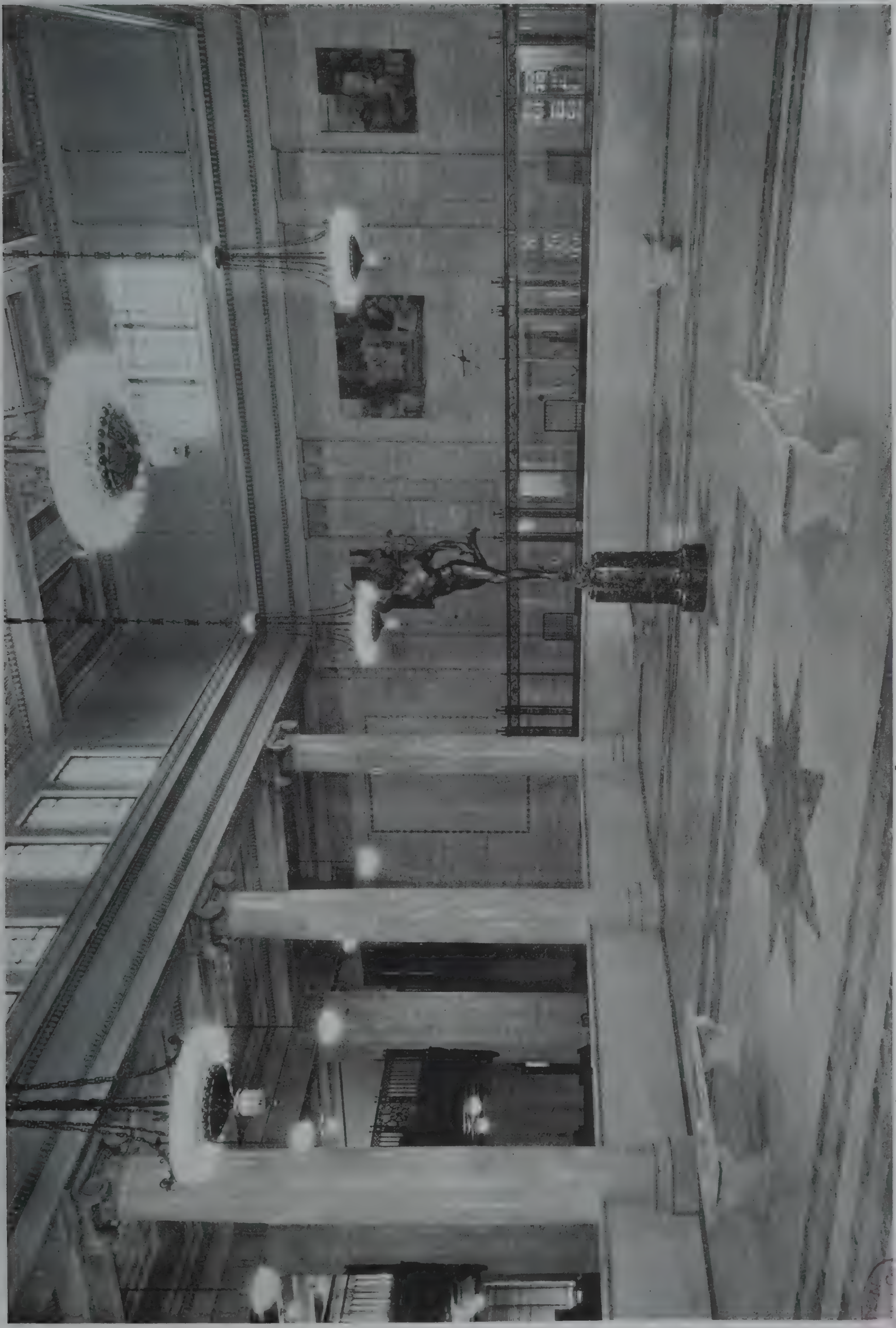


DETAIL, ENTRANCE FRONT, KANSAS CITY LIFE INSURANCE COMPANY BUILDING
WIGHT & WIGHT, ARCHITECTS



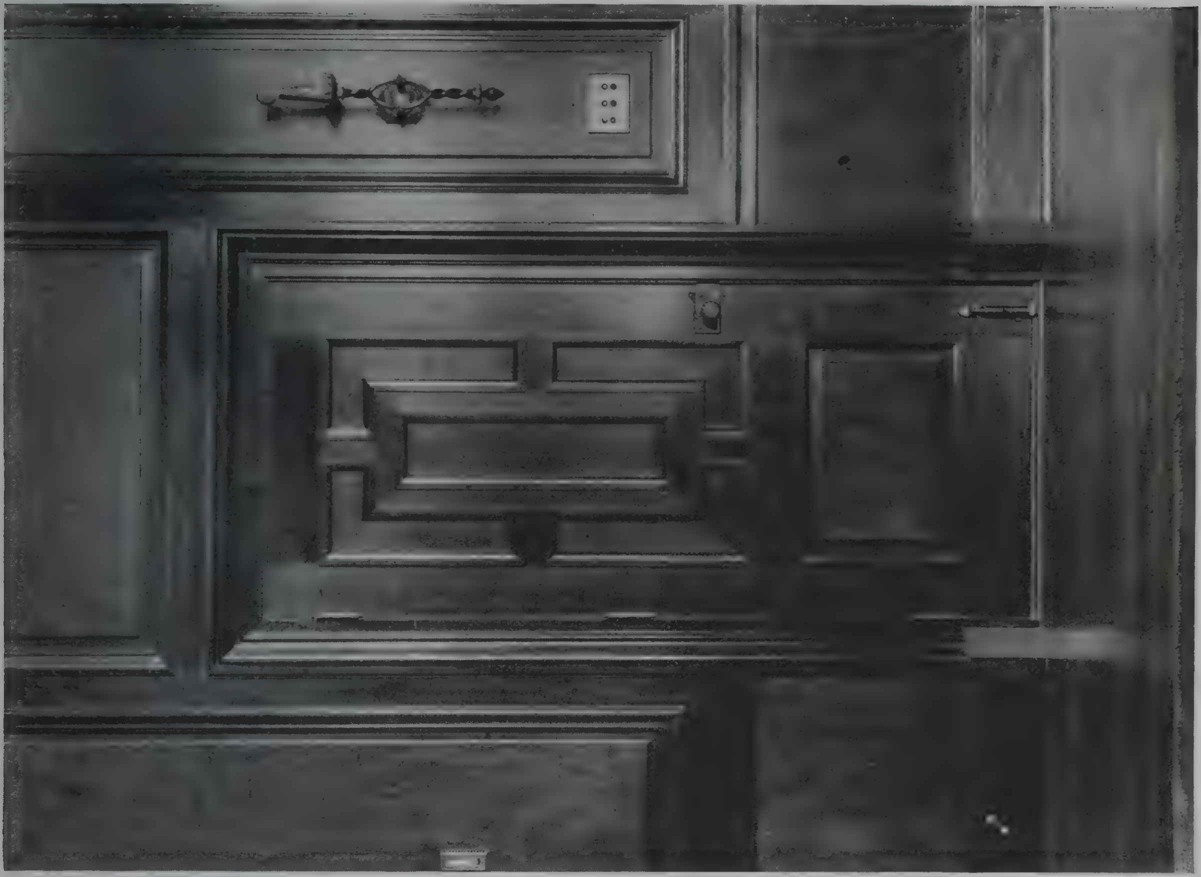
DETAIL, ENTRANCE DOOR, KANSAS CITY LIFE INSURANCE COMPANY BUILDING
WIGHT & WIGHT, ARCHITECTS

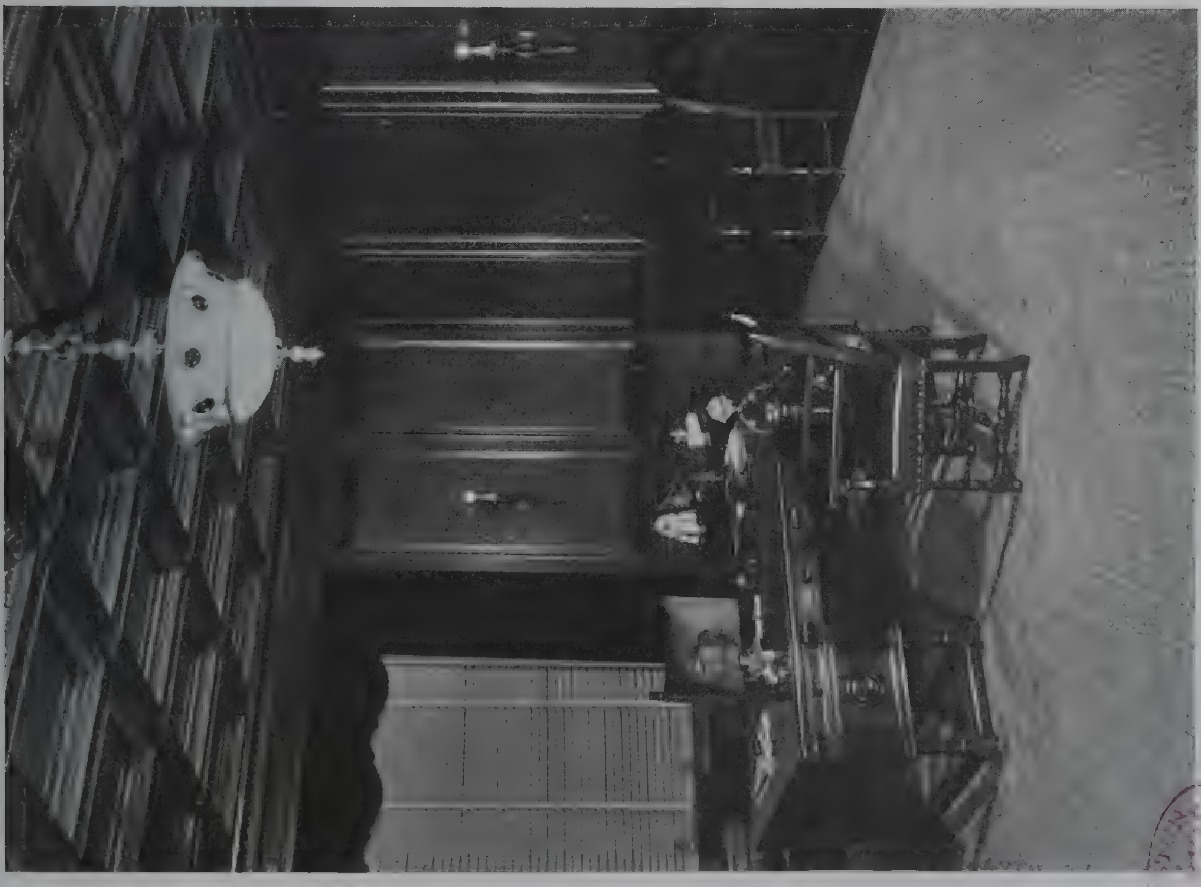
BOSTON PUBLIC LIBRARY



PUBLIC LOBBY, KANSAS CITY LIFE INSURANCE COMPANY BUILDING

WIGHT & WIGHT, ARCHITECTS





DETAILS, OFFICE OF THE PRESIDENT, KANSAS CITY LIFE INSURANCE COMPANY BUILDING

WIGHT & WIGHT, ARCHITECTS

SMALL BUILDINGS

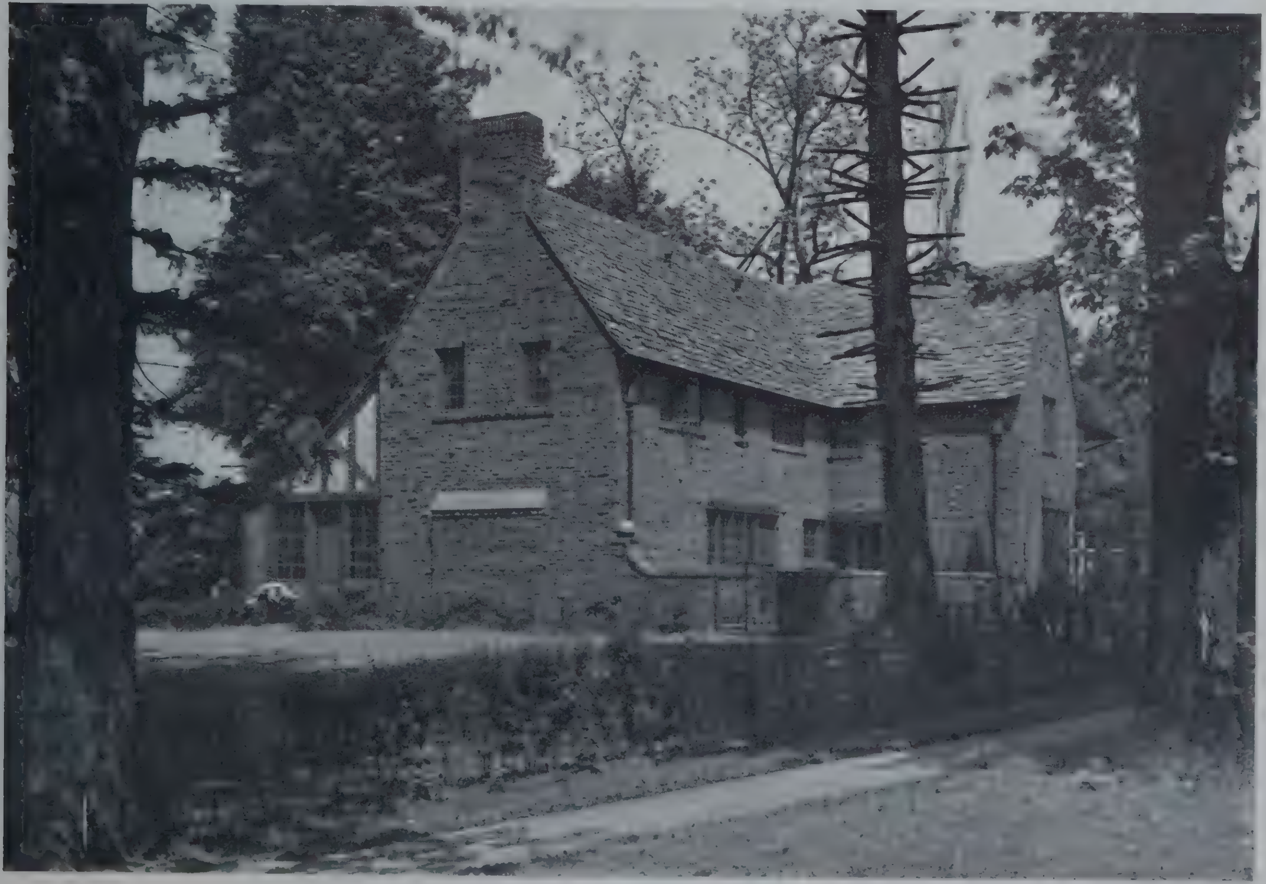
Use of Half Timber, Stucco and Brick

SHOWN IN SOME RECENT WORK OF FRANK J. FORSTER

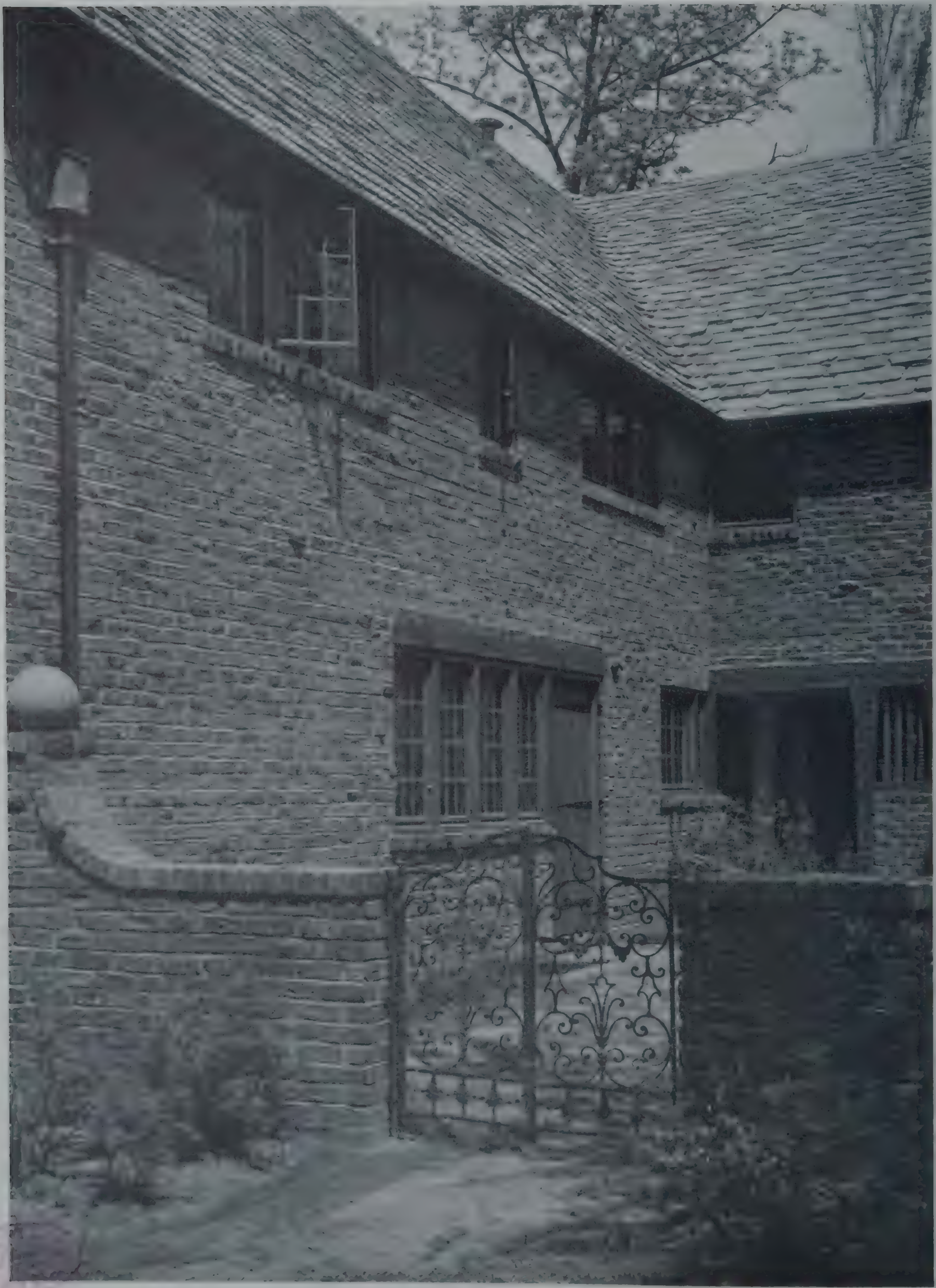
SKILL in architectural design depends largely upon the ability of the designer to select the various details and materials to be used, and to combine them in a pleasing and harmonious way. During the past few decades several attempts have been made to establish new architectural or decorative "styles;" each has attracted a certain more or less tentative following, flourished to some extent for a brief time, and then been relegated to the limbo of discarded things, leaving behind buildings or examples of decoration to serve as warnings to those who should come after, and rendering the dependence upon recognized historical forms and precedent more complete than ever. It must be now abundantly evident that no further styles are being held in reserve. Discovery of all possible forms has already been made, and while architects may be reluctant to admit it, nothing far beyond a working over and readaptation of well known forms is to be looked for.

In this inevitable use of forms already familiar by long use, there are several architects who have developed what might almost be called styles of their own. Possibly it is the result of study, personal predeliction or perhaps of following the line of least resistance, that one architect becomes so filled with the spirit of mediæval Gothic that he plans churches which might have been built centuries ago in northern France,—or that another handles Italian and Spanish Renaissance forms with such ease and grace that one could imagine his buildings having been removed bodily from Florence or from Seville.

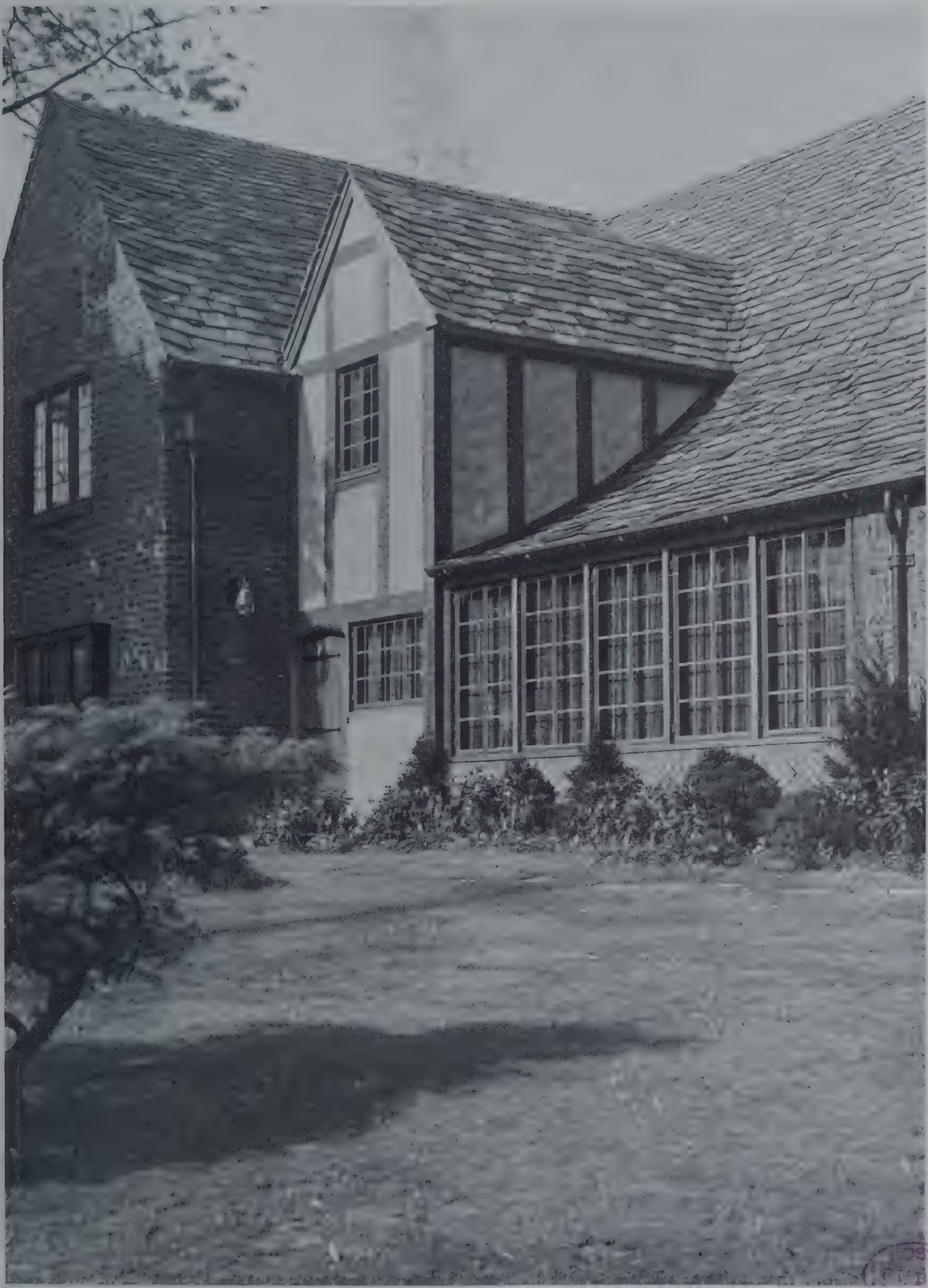
Frequent readers of architectural publications, or of those of which domestic building, decoration and furnishing form the subject matter, find that it is possible to "place" almost instantly a house designed in the office of Frank J. Forster. Among the marks which render comparatively simple such identification there are several which are easily recognized:



House of J. W. Day, Esq., Douglaston, N. Y.
Frank J. Forster, Architect

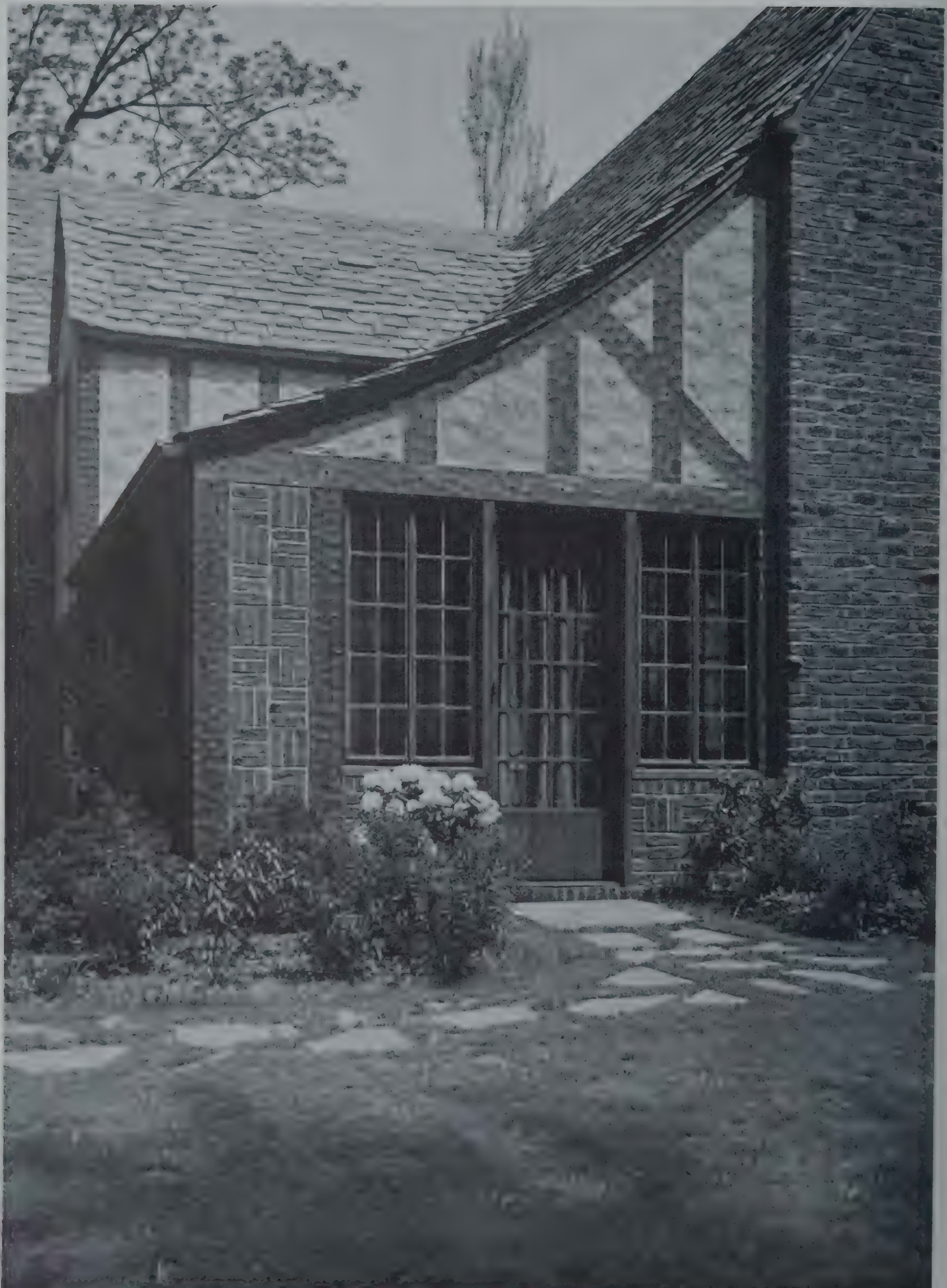


DETAIL OF COURTYARD
HOUSE OF J. W. DAY, ESQ., DOUGLASTON, N. Y.
FRANK J. FORSTER, ARCHITECT

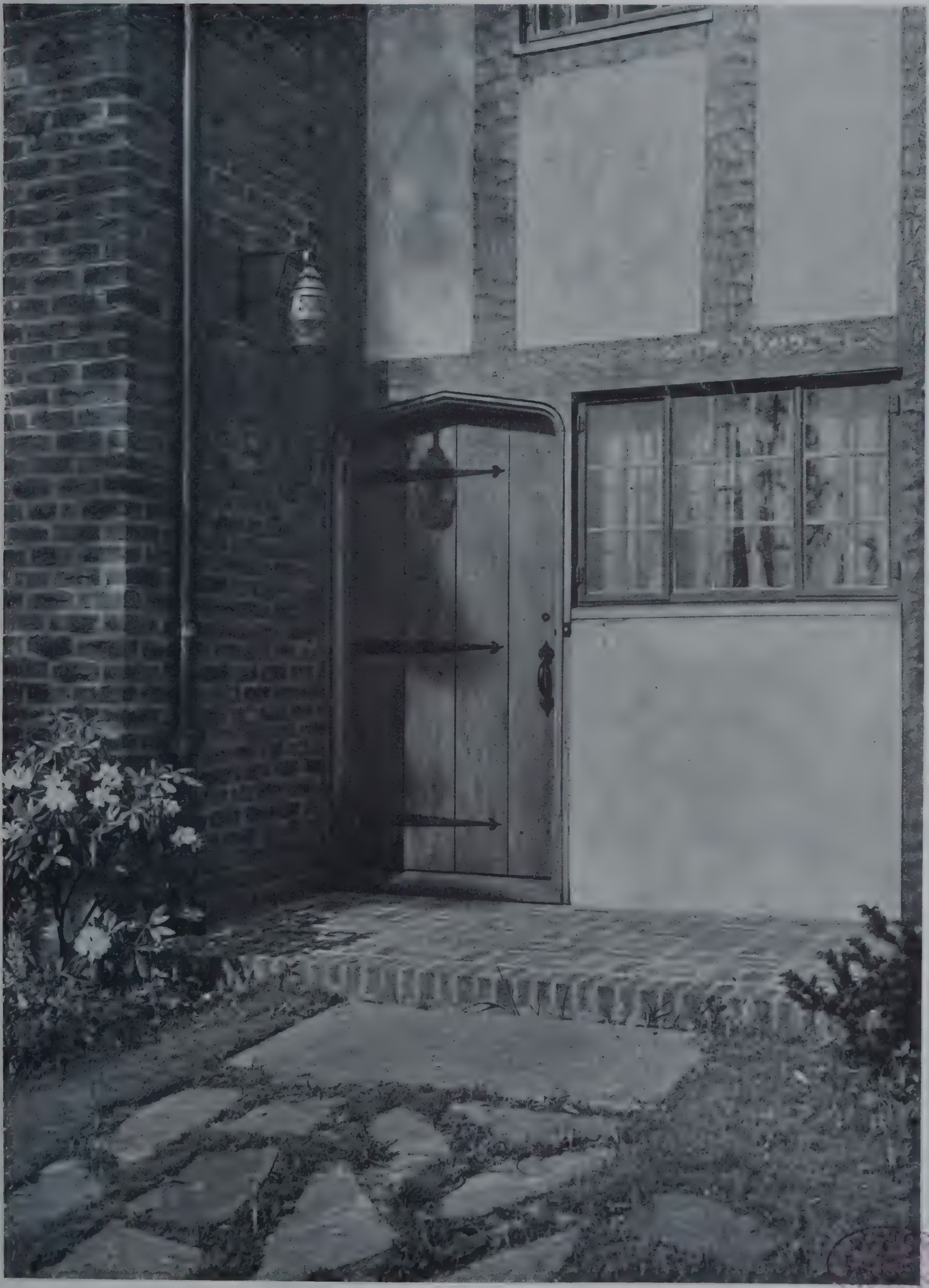


DETAIL OF SUN PORCH AND ENTRANCE
HOUSE OF J. W. DAY, ESQ., DOUGLASTON, N. Y.
FRANK J. FORSTER, ARCHITECT

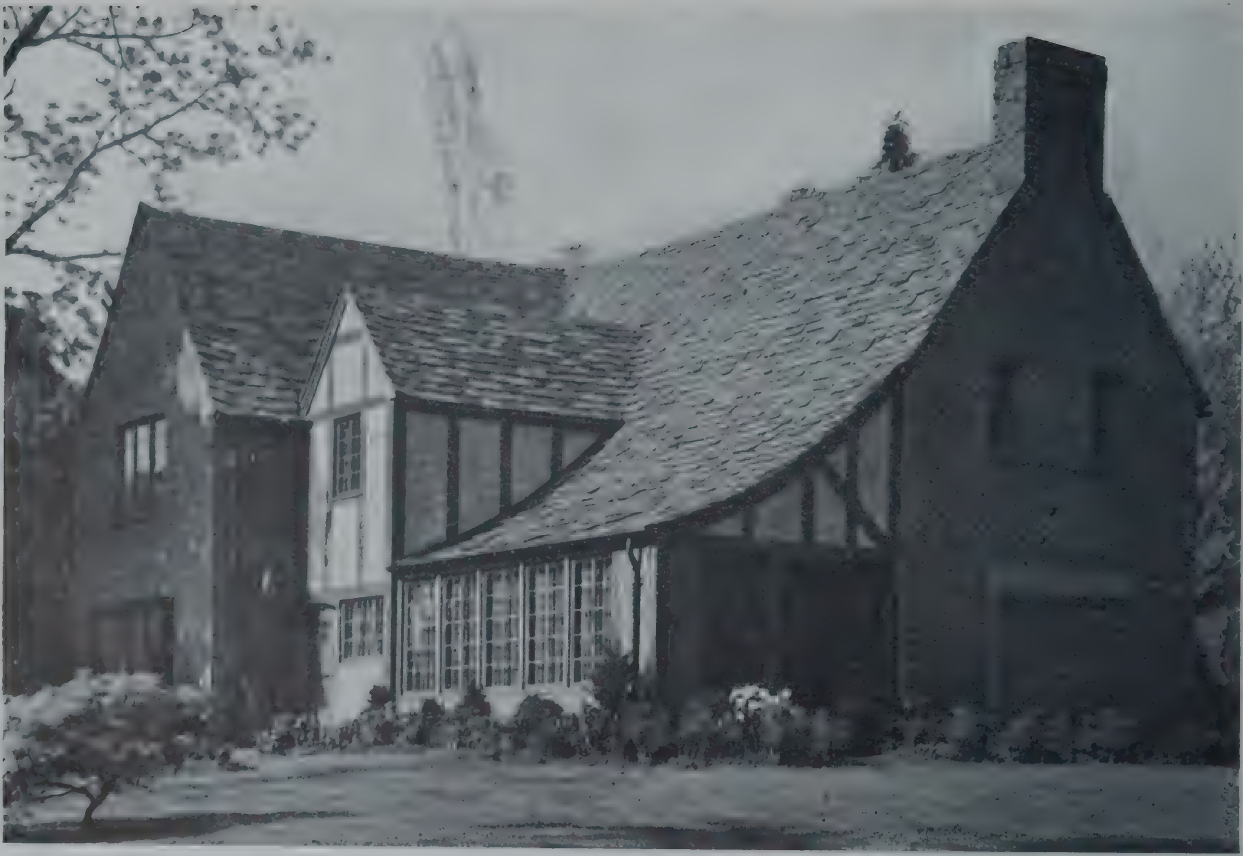
BOSTON PUBLIC LIBRARY



DETAIL, ENTRANCE TO SUN PORCH
HOUSE OF J. W. DAY, ESQ., DOUGLASTON, N. Y.
FRANK J. FORSTER, ARCHITECT



DETAIL, ENTRANCE DOOR
HOUSE OF J. W. DAY, ESQ., DOUGLASTON, N. Y.
FRANK J. FORSTER, ARCHITECT

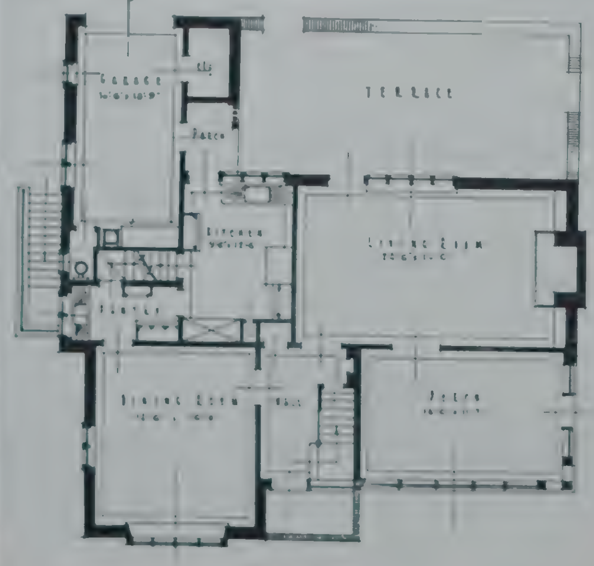


Front Elevation, House of J. W. Day, Esq., Douglaston, N. Y.
Frank J. Forster, Architect

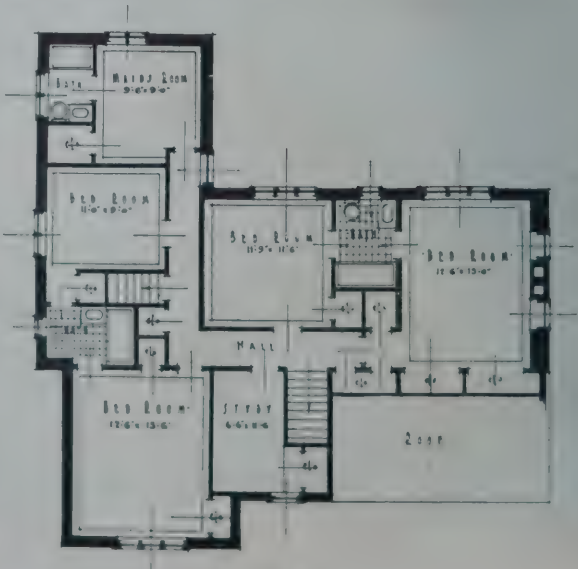
(1) A rare skill in grouping, which creates a picturesque and architectural composition, wholly unaffected or exaggerated and involving no sacrifice in the matter of interior planning to secure this effect.

(2) A skillful handling of roof surfaces, which makes all possible use of the roof's legitimate functions in the way of contributing to house design.

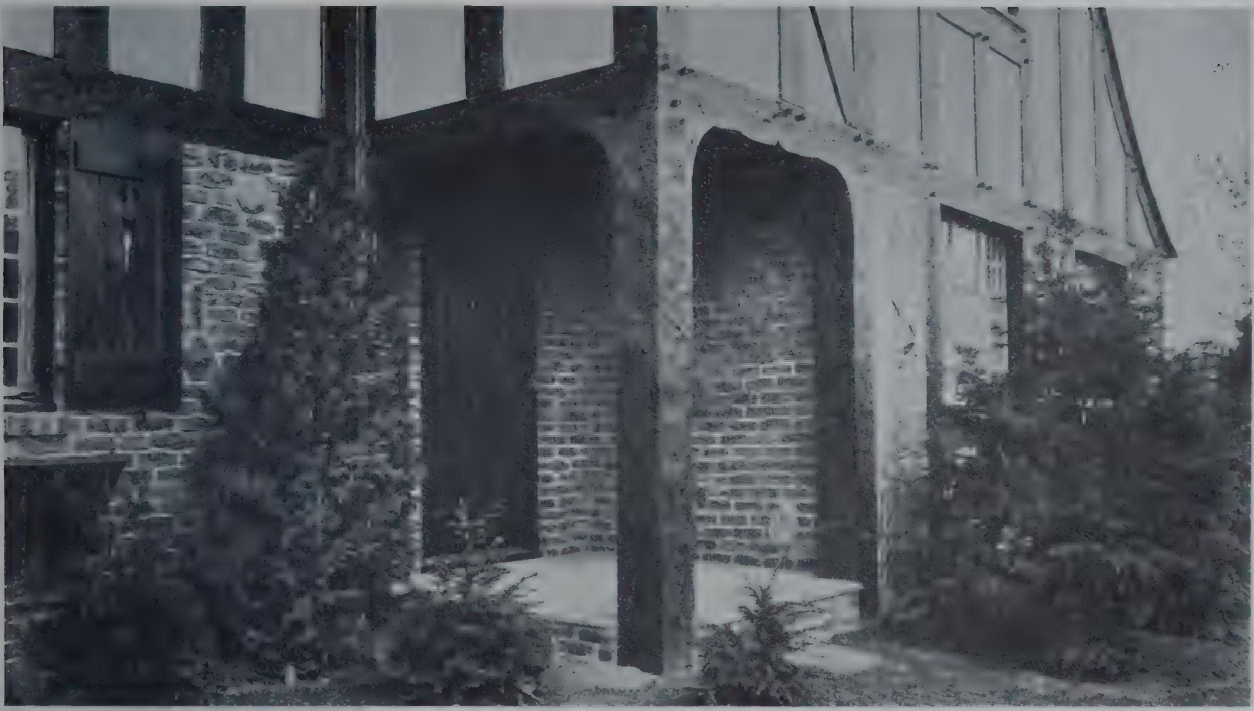
(3) Excellent use of half-timber in connection with brick or stucco, which makes abundantly plain to the most casual observer the *nature* of such use,—structural and in full accord with historic building practice when a framework of timbers is filled in with brick which are either left exposed or plastered over, or else when used without intent to deceive as



First Floor



Second Floor

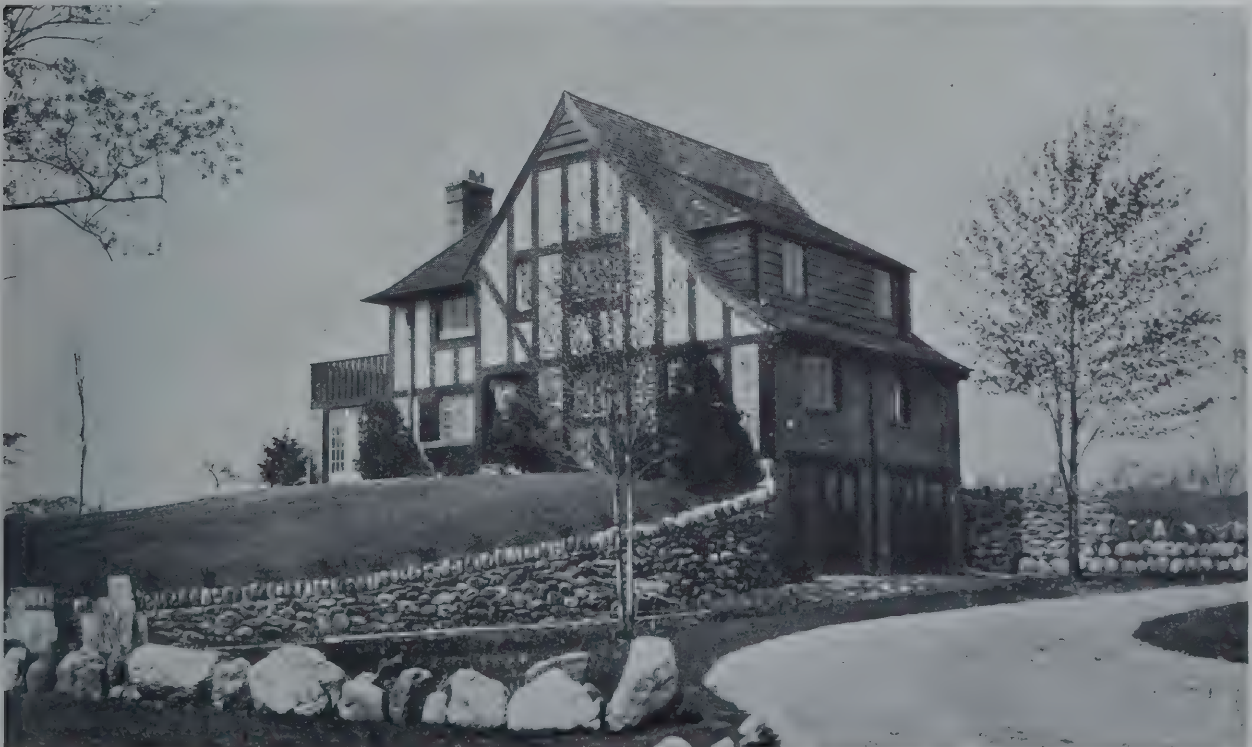


Entrance Porch, House of Grant Thorn, Esq., New Rochelle, N. Y.
D. A. Summo, Architect

narrow strips of wood set into the walls of plaster or stucco to add decorative interest or to secure accent.

(4) Telling and consistent use of building materials which create contrasts, giving emphasis to the value of each,—stone in combination with shingles; brick combined with wood and stucco in the aforesaid half-timber patterns; use of clapboards, either alone or with brick or stone, and much use of slate on roofs, the "valleys" being rounded, as the historic use of slate requires, to avoid sharp lines.

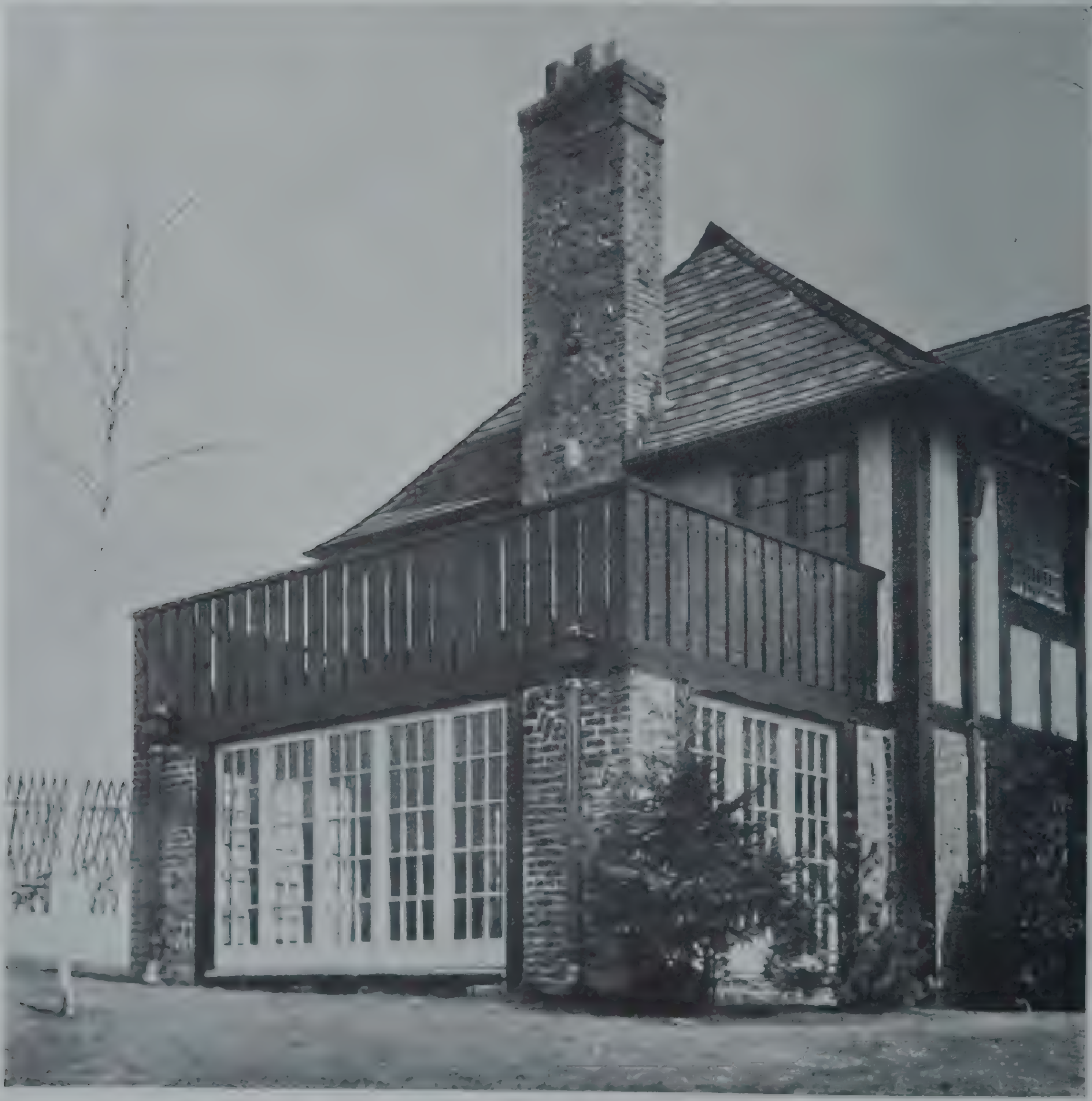
(5) Skill also in the placing of window openings, singly or else grouped, or sometimes so planned that several windows are combined with a door to form effective and graceful fenestration, the architectural value of the grouping often emphasized by use above the openings of a heavy beam, carved or hand hewn.



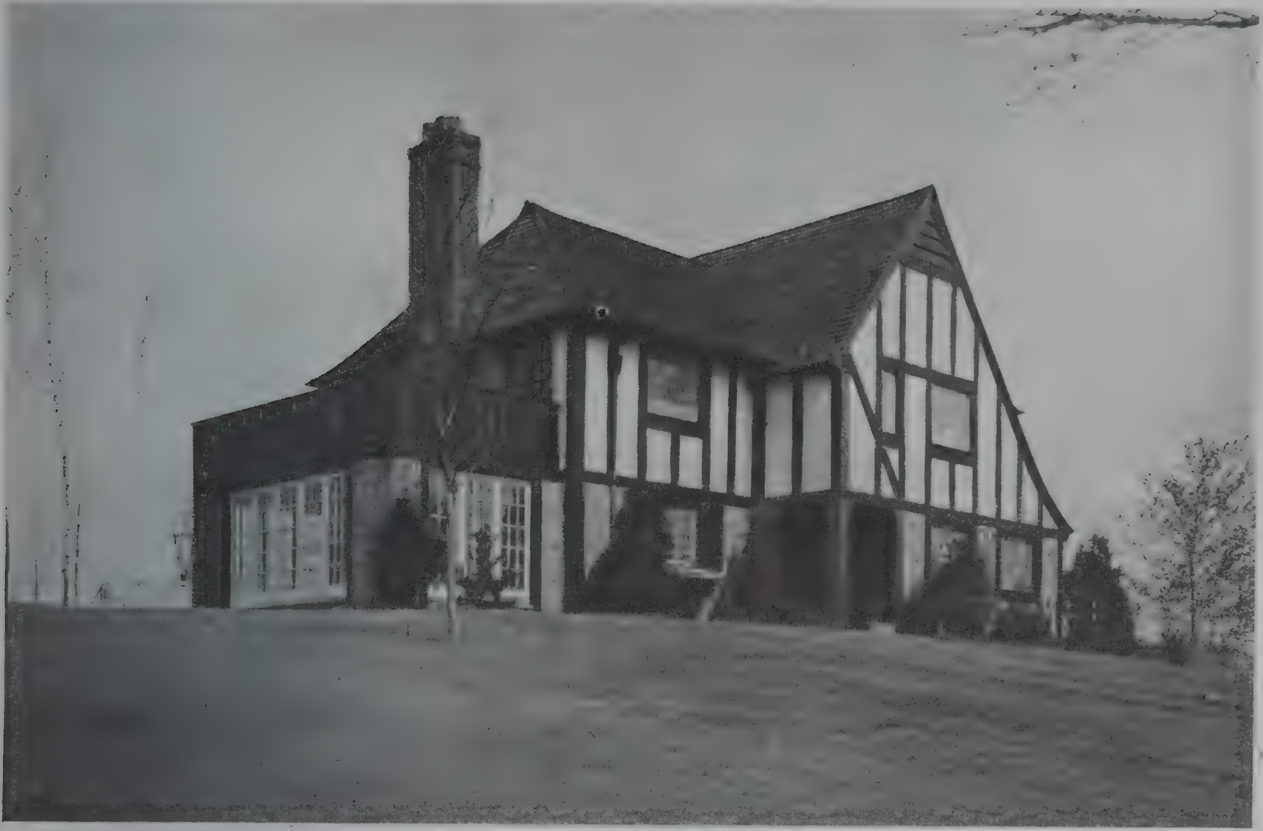
House of Grant Thorn, Esq., New Rochelle, N. Y.
Fall in Grade Permits Successful Locating of Garage in Basement.
D. A. Summo, Architect

The characteristics enumerated here are, it will be noted, those which give to English domestic architectural expression its strength and charm, and which clothe them with a quality which differs from that possessed by the architectural styles of any other country. Study of floor plans discloses the fact that interior arrangements possess the same English characteristics which distinguish the exteriors. This planning includes provision for a few rooms of ample sizes, low ceiled perhaps, with wide fireplaces and lighted by the casement windows, single or grouped in one way or another, which as already said, add architectural interest to the exterior as well as to the interior. This expression of strong English architectural characteristics is in no sense archæological. Good architecture demands the adapting or fitting of a form or style to the purpose to be served, and the retaining as far as possible of the spirit of the design while altering its expression.

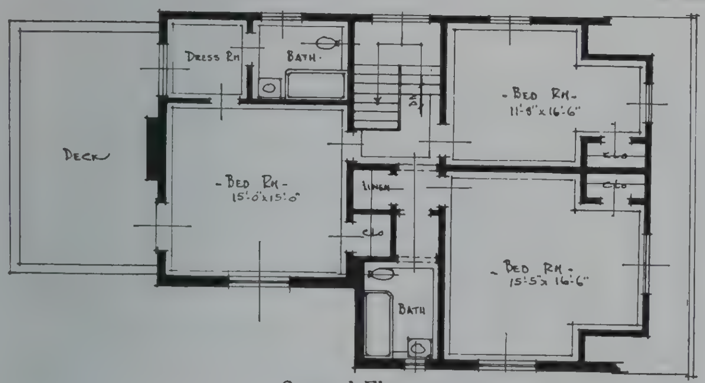
In studying Mr. Forster's work there is, however, almost invariably to be found a spiritual quality which defies analysis and which for want of a better word might be called "character" or "personality." Many an architect, given a certain quantity of building material, both could and would create a structure which would be practical and comfortable as a dwelling, and yet he might quite fail in securing that subtle and highly elusive quality which distinguishes all of Mr. Forster's work, in one degree or another, — possibly not always in the *highest* degree, since like some other architects he seems to "profit most" when he "serves best," or, expressed in other words, he does his best work when the absolute utmost must be obtained for the client's money, and when much ingenuity and considerable effort must be exercised to build the house at all. This is likely to require the omission of ornament and the reliance upon form and the use of materials in ways which emphasize beauty of line and strength of structure. Discipline is always wholesome, especially when applied to architecture.



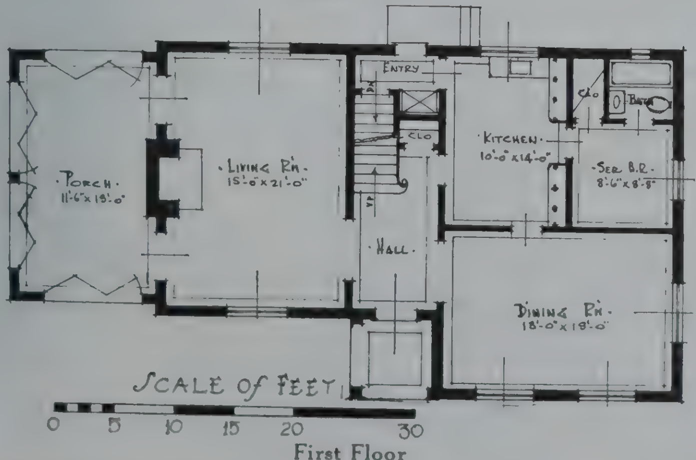
Sun Porch, House of Grant Thorn, Esq., New Rochelle, N. Y.
D. A. Summo, Architect



HOUSE OF GRANT THORN, ESQ., NEW ROCHELLE, N. Y.
D. A. SUMMO, ARCHITECT



Second Floor



First Floor

AN interesting example of the use of half-timber patterns, stucco and brick is found in this small house recently completed at New Rochelle. The use of timber is here logically carried out, as the frame of the house is left exposed in true English fashion. Between the timbers of the frame, which were gone over by hand with an adze to give them an antique effect, stucco and brick are used. In contrast to the plain character of the plaster used between the timbers above, rough brick of interesting texture are set into the panels formed by the timbers of the first story. The variety of patterns used in these panels of brickwork adds much to the charm and quaintness of the building. Metal casements with heavily leaded small panes of glass give further distinction to the design as well as scale to the window openings, very characteristic of English work of the earlier architectural periods.

The composition of the elevations is pleasingly proportioned and shows careful study. The large sun room at one end of the house is made an integral part of the building itself by

FORUM SPECIFICATION AND DATA SHEET—56

House of Grant Thorn, Esq., New Rochelle, N. Y.; D. A. Summo, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Timber, stucco and brick.

ROOF:
Shingles.

WINDOWS:
Steel casements.

FLOORS:
Oak.

HEATING:
Hot Water.

PLUMBING:
Enameled iron fixtures. Brass piping for hot water.

ELECTRICAL EQUIPMENT:
Lighting and cooking.

INTERIOR MILL WORK:
Whitewood.

INTERIOR WALL FINISH:
Sand-finished plaster.

DECORATIVE TREATMENT:
Dark stained woodwork and natural color plaster.

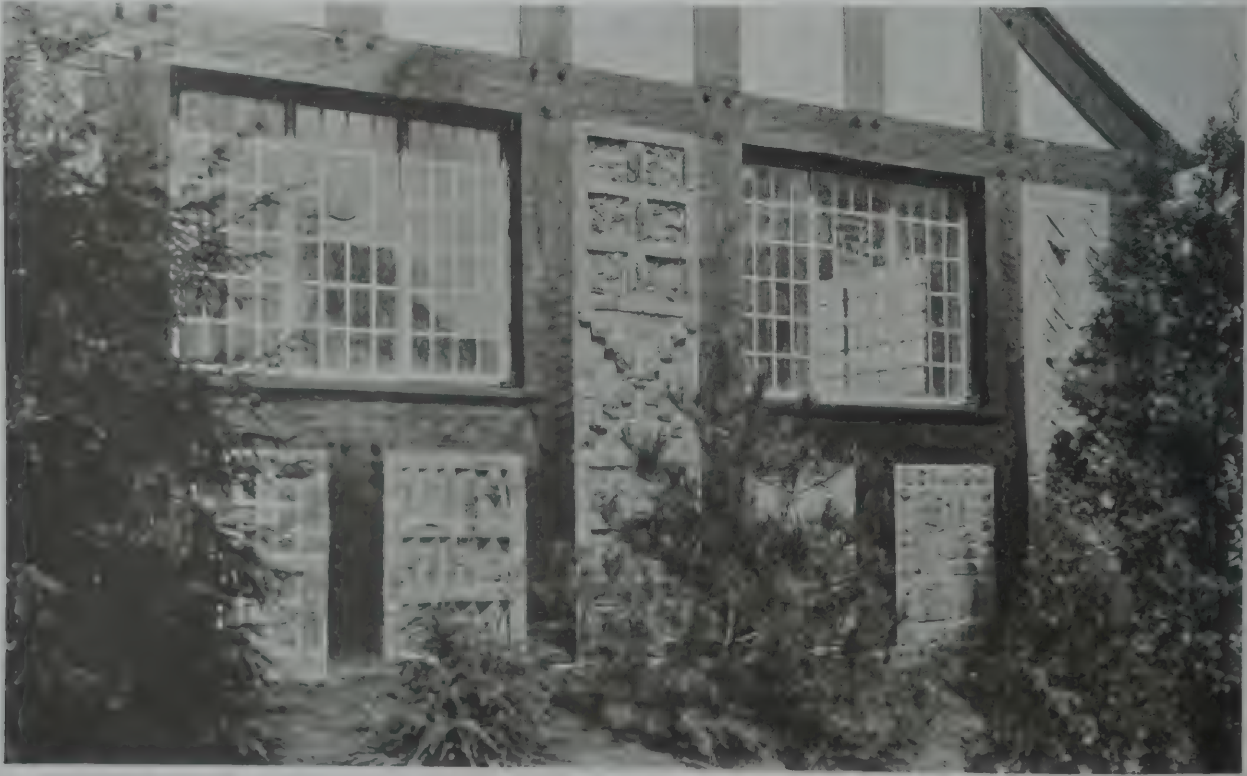
APPROXIMATE CUBIC FOOTAGE:
42,375.

COST PER CUBIC FOOT:
50 cents.

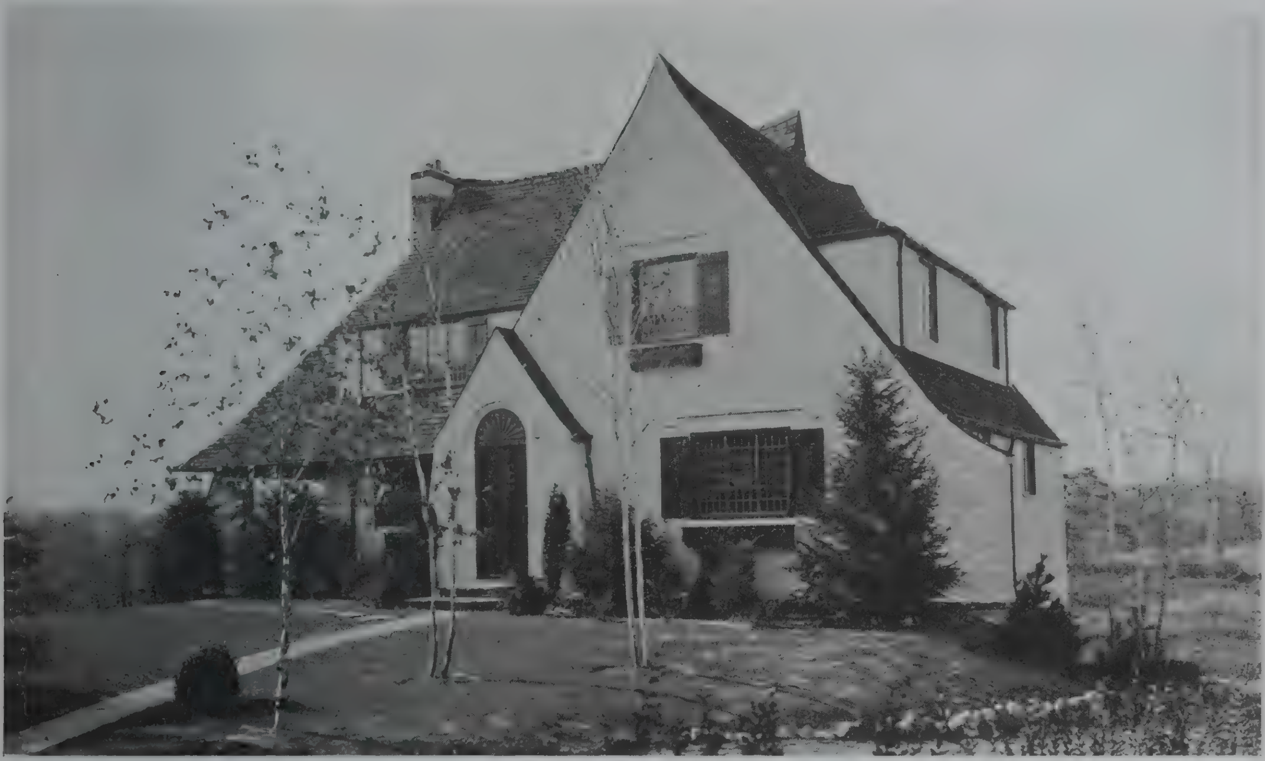
DATE OF COMPLETION:
April, 1925.

means of repeating the treatment of vertical timbers and quaint brickwork and by extending the main sill of the second floor of the house to form a base for the high plank balustrade which is the crowning feature of the porch. A tall chimney, surmounted by pots, balances the design in a pleasing manner.

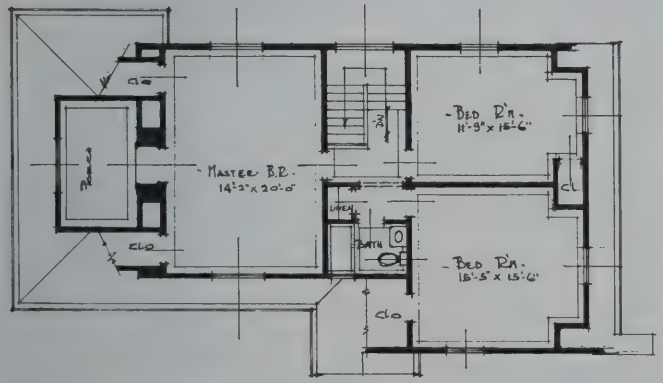
The plan of this house is as simple and straightforward as is its exterior design. A center hall and stairway separate a large living room on the left from a dining room and kitchen on the right. At the rear of the kitchen is a servants' bedroom and bath, which obviates the necessity of using space on the second floor for these rooms. On the second floor, in spite of the long slope of the principal roof, three good sized bedrooms, two baths, a dressing room and several large closets are provided. Casement windows open from one of the bedrooms onto the roof of the sun parlor, thus permitting use of this space as a sleeping porch. The high plank balustrade forms an excellent screen for this open upper porch. The location of the house on rising ground is unusually fortunate, since it permits the introduction of a garage under the house, reached from a lower level, an arrangement highly practical.



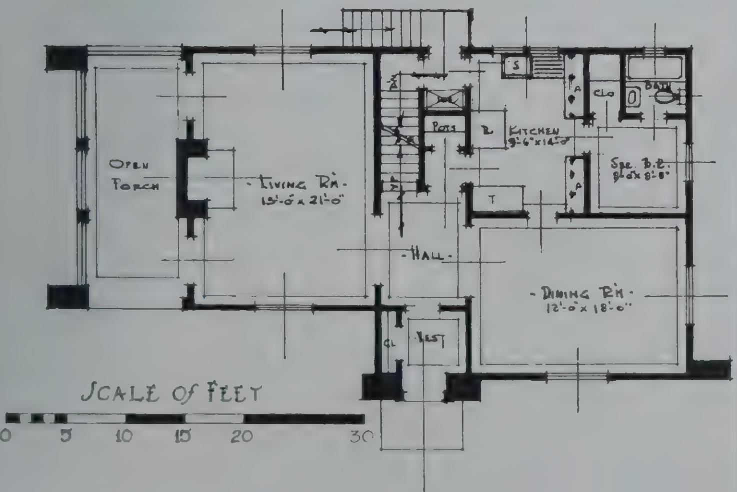
Detail of Fenestration of Dining Room Wall



HOUSE OF FRANCIS ROGERS, ESQ., NEW ROCHELLE, N. Y.
D. A. SUMMO, ARCHITECT



Second Floor



First Floor

GIVEN the same plan and practically the same cubic contents for a small house, it is interesting to note the variations possible in exterior design. In this small house at New Rochelle the architect used a plan almost identical with that of the Grant Thorn house, illustrated upon page 233, but in exterior treatment the two houses are quite dissimilar. Instead of using half-timber forms, stucco and brick to secure a picturesque effect, following old English precedent, the exterior walls here are covered with rough-cast stucco, and the steep pitched roof is brought down to the top of the first story. Curving ridges and overhanging eaves give a pleasing, low effect. The arched entrance door as well as the double and triple windows on the entrance facade show above them interesting mouldings of cast cement. Heavy plank shutters, window boxes and a solid entrance door, all painted blue-green, are the important decorative features of the design. A small entrance porch with separate gable is well located at the center of the entrance facade. The soft wall tints of the stucco contrast pleasantly with the moss green and copper tones of the stained roof

FORUM SPECIFICATION AND DATA SHEET—57

House of Francis Rogers, Esq., New Rochelle, N. Y.; D. A. Summo, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Stucco.

ROOF:
Shingles, stained.

WINDOWS:
Steel casements.

FLOORS:
Oak.

HEATING:
Hot water.

PLUMBING:
Enameled iron fixtures; brass piping for hot water.

ELECTRICAL EQUIPMENT:
Lighting and cooking fittings.

INTERIOR MILL WORK:
Whitewood.

INTERIOR WALL FINISH:
Sand finish plaster.

DECORATIVE TREATMENT:
Dark stained wood and tinted walls.

APPROXIMATE CUBIC FOOTAGE:
39,750.

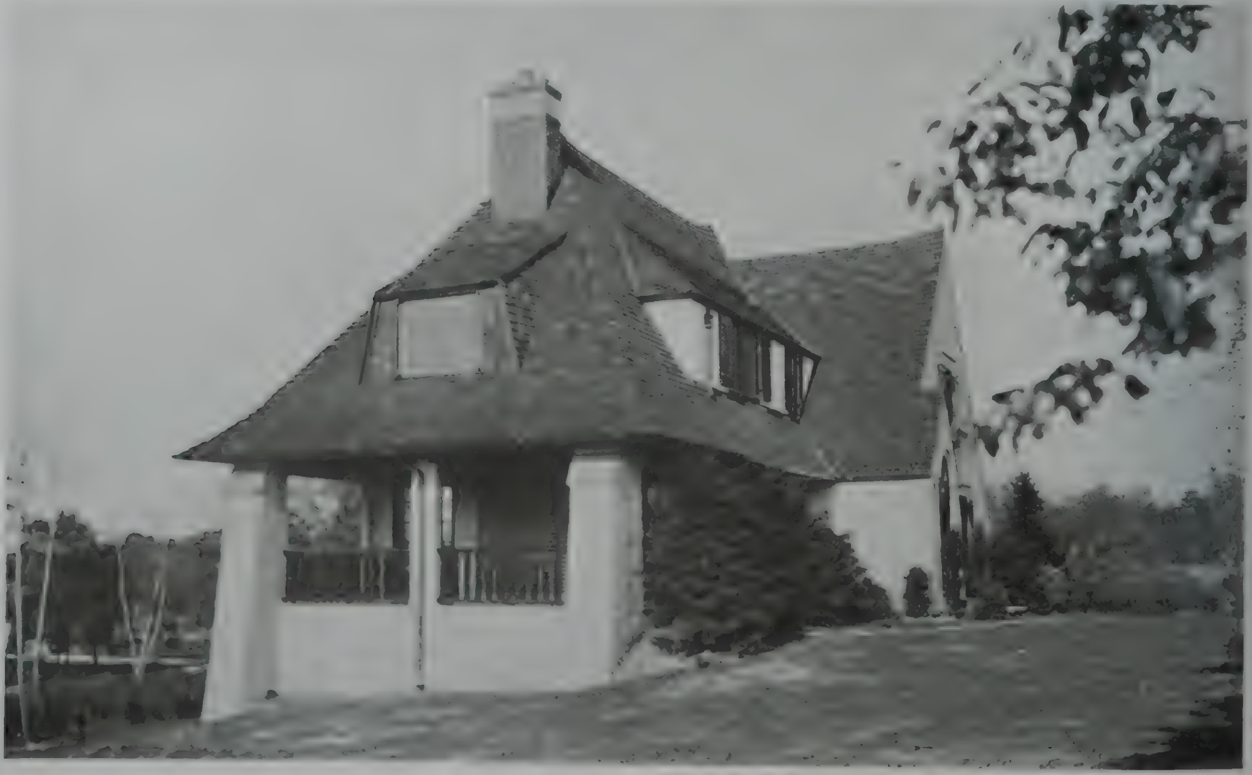
COST PER CUBIC FOOT:
50 cents.

DATE OF COMPLETION:
December, 1924.

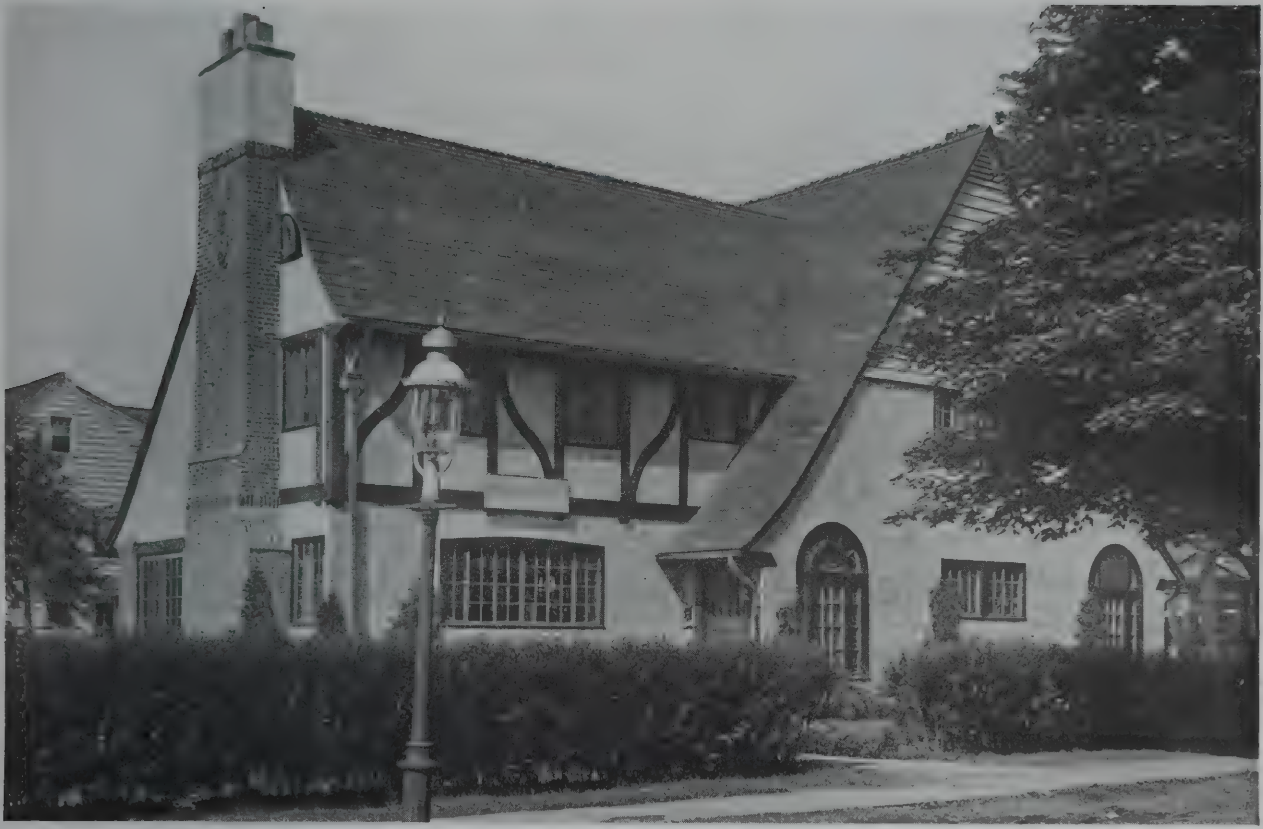
shingles. Green firs and spruces prevent monotony of bare, unbroken wall surfaces, and several slender birches give an informal accent to the small front lawn, at the side of which a sloping drive leads to a garage located under the rear portion of the house.

The plan shows rooms slightly larger than those in the Grant Thorn house. The arrangement of the closets and the kitchen entry at the rear of the front hall is compact and practical, involving no waste space. A servant's bedroom and bath, with good sized closet, are included, just as they are in the Thorn house. The second floor also shows three good sized master bedrooms, but in this case only one bath is included. More space is lost here than on the second floor of the Thorn house, on account of the deep overhanging of the roof. Space under the eaves, however, is utilized for closet and storage purposes. Part of this space, which might be almost useless because of the roof's overhang, has been used for an upper floor porch, probably a sleeping porch, since it is reached only from one of the bedrooms.

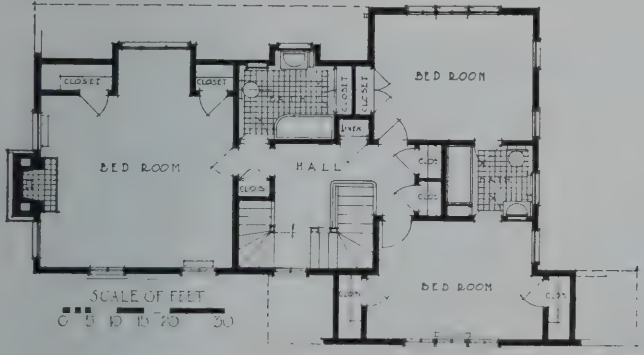
The house, upon the whole, is an excellent example of the American following of what is often termed the "modern English" domestic style, a type which is well adapted to present-day American needs, and which may be given interesting treatment.



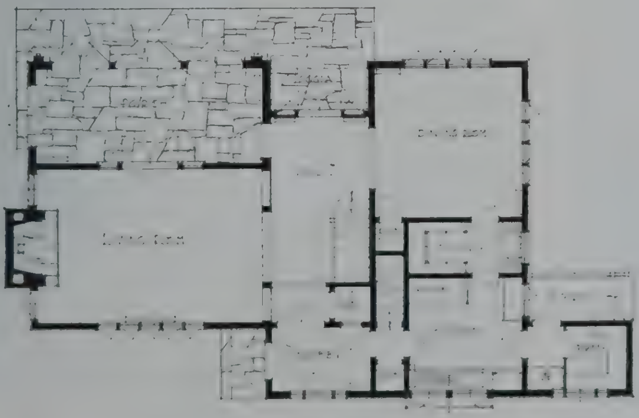
Detail of Porch and Garden Facade



HOUSE OF MISS EDITH BOGUE, MONTCLAIR, N. J.
CLIFFORD C. WENDEHACK, ARCHITECT



Second Floor



First Floor

THIS house, which was built three years ago, is a model of English charm. Here rough-cast stucco with half-timber design on the front of the second story, combined with heavy siding under the front gable, gives individuality and distinction. Louver openings under the peaks of the main roof give ventilation to the unfinished attic space. The windows are spacious and well placed, giving well lighted, sunny interiors. In this house the living porch is really a continuation of the living room, being built into the house itself instead of projecting from the end elevation. This location of the porch saves money, and tends to make a more compact plan. The tall exterior chimney of red brick, capped with stucco and chimney pots, forms a strong motif at the end of the house, balancing in a measure the large front gable, the long, low slope of which adds much to the picturesque quality of the design. Arched windows on either side of the lower story of this gable give a pleasingly balanced and symmetrical effect to the building.

The plan is unusually well studied and worked out. The front entrance lobby connects not only with the main hall of the house but also through an

FORUM SPECIFICATION AND DATA SHEET—58

House of Miss Edith Bogue, Montclair, N. J.; Clifford C. Wendehack, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Stucco, timbers and clapboards.

ROOF:
Shingles, stained.

WINDOWS:
Metal casements.

FLOORS:
Red oak.

HEATING:
Steam.

PLUMBING:
Enameled iron fixtures with brass piping.

ELECTRICAL EQUIPMENT:
Lighting, cooking and laundry apparatus.

INTERIOR MILL WORK:
Cypress, stained.

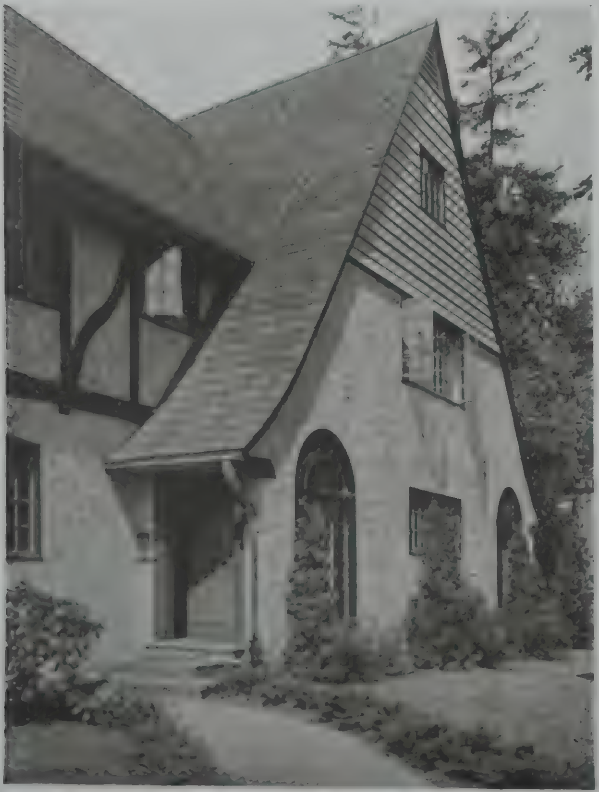
INTERIOR WALL FINISH:
Rough plaster.

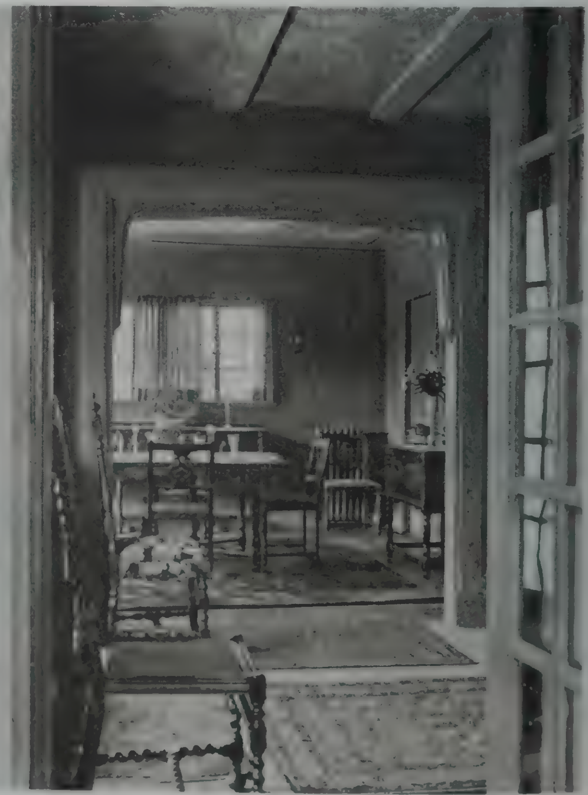
DECORATIVE TREATMENT:
Stained wood and painted walls.

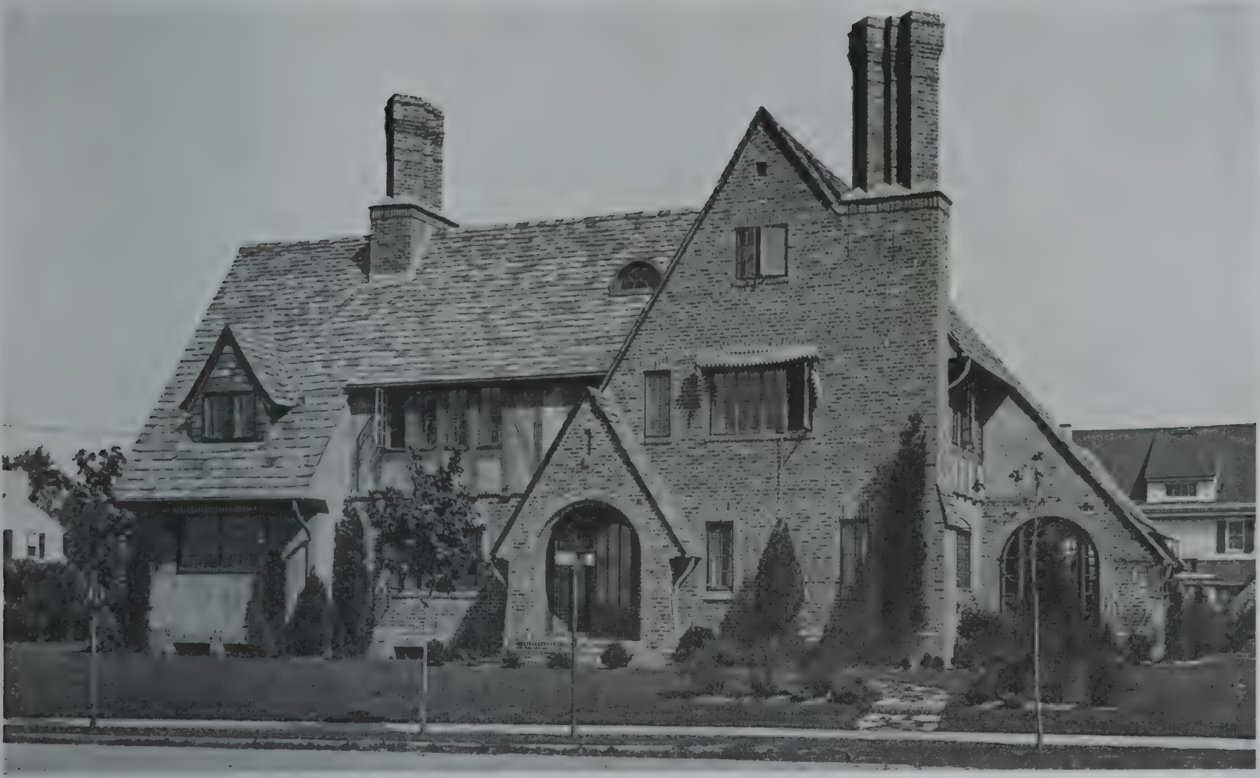
COST PER CUBIC FOOT:
55 cents.

YEAR OF COMPLETION:
1922.

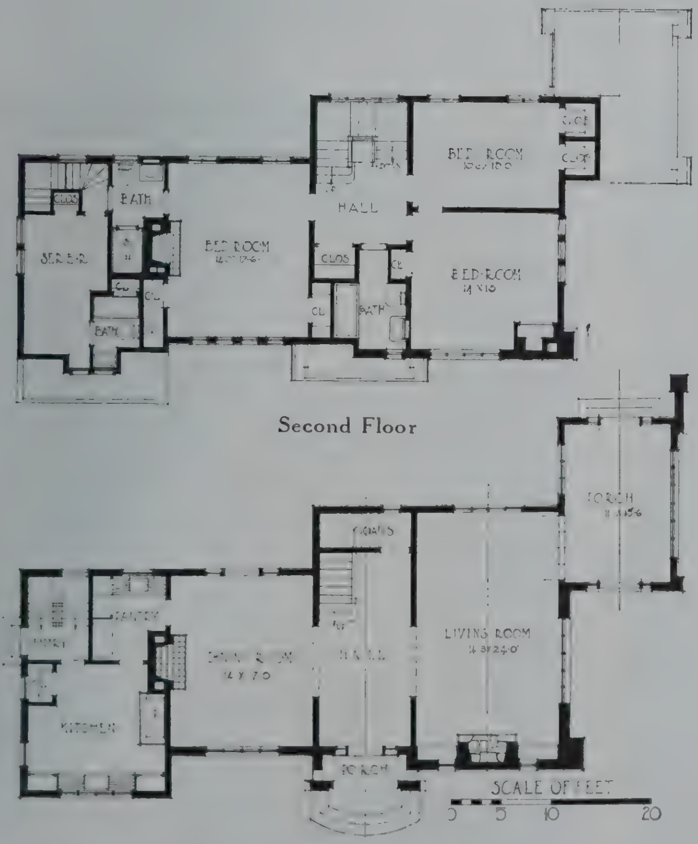
entry with the cellar stairs and kitchen. The latter is purposely located at the front of the first floor, making it possible to place the dining room adjacent to the loggia and porch at the rear. A pantry separates the dining room and kitchen, and ample space for stores and ice box is provided adjacent to the servants' porch. The main stairway, which continues up to the third floor, is located at one side of the wide entrance hall. The second floor has three master bedrooms, two large baths, and ample closet space. The location of one of the baths over the pantry makes for economy in the plumbing layout. On the whole, the plans of both the first and second floors are original and conveniently worked out. Study of the exterior views of the house will prove that a considerable part of its charm is due to the use at the windows of casements of metal which open out. Casements, of course, heighten the English character of the building, which looks its best with evergreens and shrubbery massed against the stucco-covered walls, and added contrast is gained by the stucco walls in connection with the stained shingles of the roof. The house is representative of the excellent work of its kind now being done.


Detail of Entrance


Entrance to Dining Room



HOUSE OF FRANK NOBBE, ESQ., ST. ALBANS, N. Y.
CLIFFORD C. WENDEHACK, ARCHITECT



Second Floor

First Floor

AMONG the recent examples of small houses built in the English style, in which half-timber forms, stucco and brick have been successfully combined, this house on Long Island is excellent. Located close to the sidewalk, on a street of a suburban town, the living room and dining room have been so placed that each room extends entirely through the house, making it possible to have casement doors at the rear opening onto a small garden. This plan is particularly good for houses located near a street, since it makes it possible for the occupants to enjoy the privacy of a garden at the rear. The kitchen here is located on the street, with the service entrance at the end of the house. Brick, which is used for part of the first story wall, is carried up to the peak of the front gable which faces the street. This gable, with its entrance porch on the first floor, and with its long sloping roof line, makes a pleasant break in the length of the front facade. Half-timber design is successfully introduced on the second floor under the over-hanging roof, and rough-cast stucco completes the remaining wall surfaces. The brick chimneys, de-

FORUM SPECIFICATION AND DATA SHEET—59

House of Frank Nobbe, Esq., St. Albans, N. Y.; Clifford C. Wendehack, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and wood frame, covered with stucco.

EXTERIOR MATERIALS:
Wood, stucco and brick.

ROOF:
Variegated slate.

WINDOWS:
Metal casements.

FLOORS:
Oak and tile.

HEATING:
Steam.

PLUMBING:
Porcelain fixtures in master baths; brass piping for hot water.

ELECTRICAL EQUIPMENT:
Lighting and laundry equipment.

INTERIOR MILL WORK:
Oak.

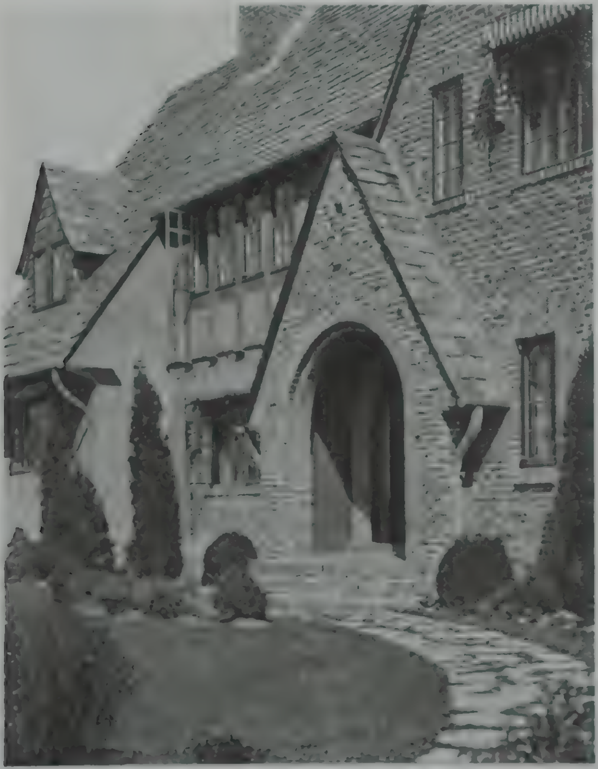
INTERIOR WALL FINISH:
Sand-finished plaster.

DECORATIVE TREATMENT:
Stained plaster and wood.

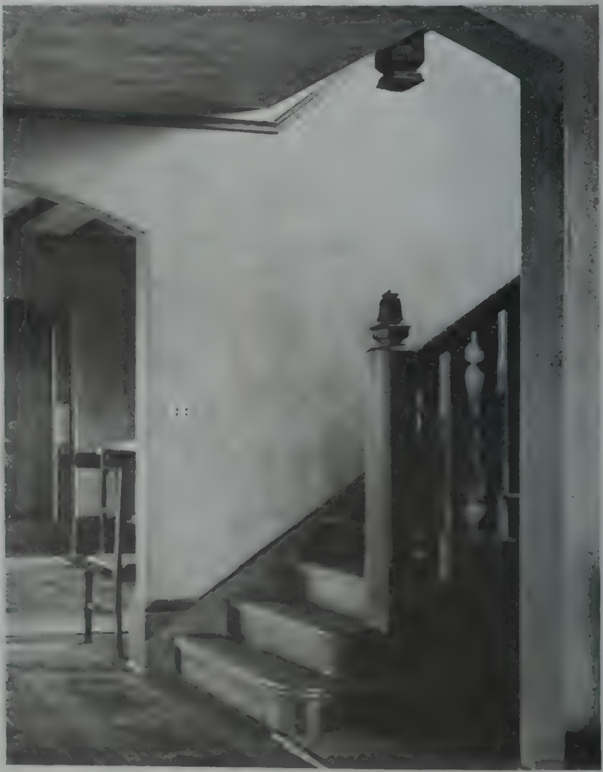
COST PER CUBIC FOOT:
63 cents.

YEAR OF COMPLETION:
1923.

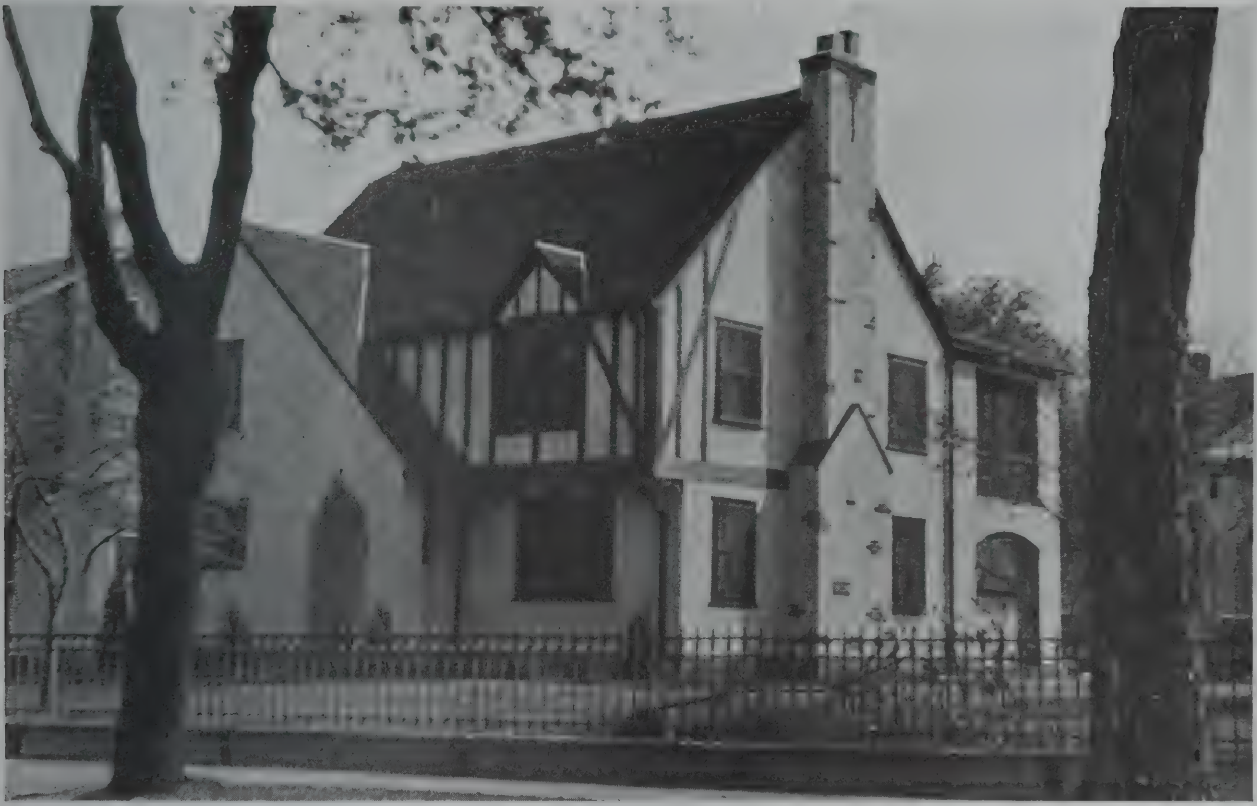
signed after the English style, give an added note of interest to the design. The plan is convenient and practical in layout, showing a central hall with coat room under the stairs at the end opposite the entrance. Fireplaces add to the architectural interest of both living and dining rooms. A large enclosed porch, which is placed adjacent to the living room, is made an integral part of the design by carrying down over it the long slope of the roof. The pantry, service stairs and entrance, together with the kitchen, occupy the extreme end of the first floor. The servants' bedroom and bath are above the kitchen. From the service stairway access is had through one of the master baths to the rest of the second floor, where three bedrooms and two baths are well located. Special attention might be drawn to the arrangement of the servants' room. In several of the small houses shown in these pages maids' rooms and baths are provided adjoining the kitchens. Desirable as this arrangement is in many respects, it makes heavy demands upon valuable first floor area. In Mr. Nobbe's house the same privacy is had by placing them *over* the kitchen in what is in effect a separate wing, an excellent and practical plan.



Detail of Entrance

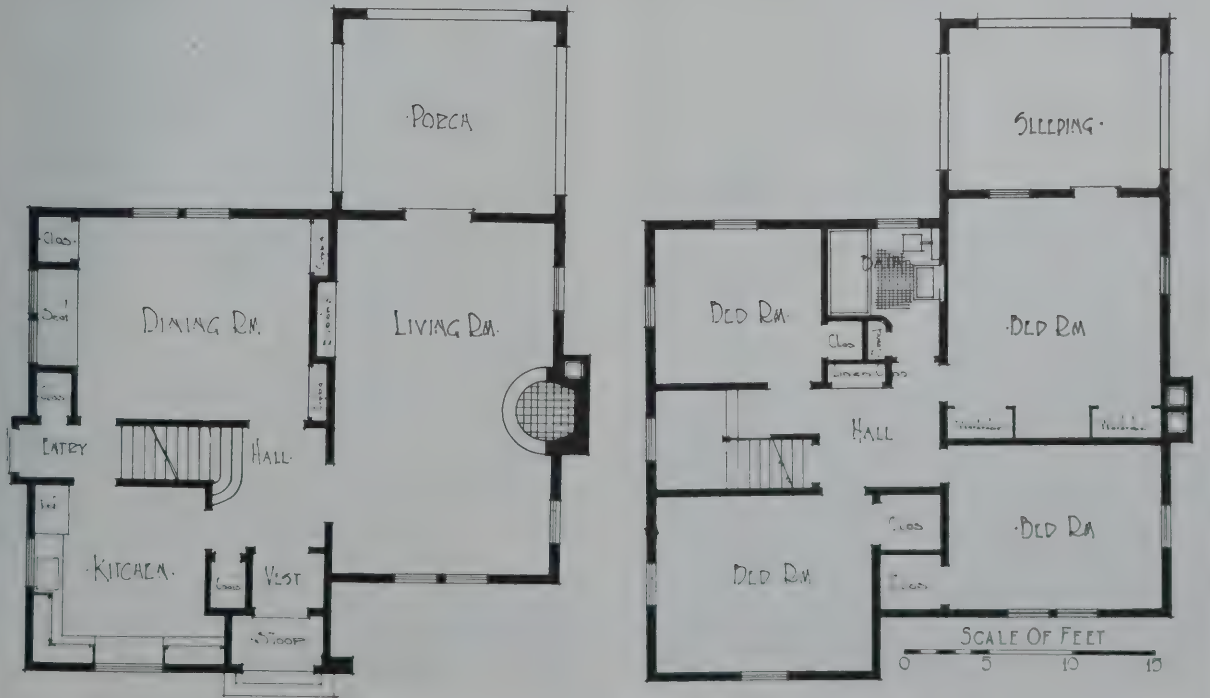


The Main Stairway



HOUSE OF PAUL GREIG, ESQ., ST. PAUL
KENNETH P. WORTHEN, ARCHITECT

IT is interesting and gratifying to note that good examples of the simple adaptation of Elizabethan architecture in modern small American houses are not restricted to any one locality. In St. Paul three small houses in this style have recently been completed, illustrations and plans of which are included in this issue of The Forum. This particular house, which was built for Paul Greig, shows an interesting elevation in which rough-cast stucco is relieved on the second story by half-timber design. The kitchen is fittingly placed at the front of the house, making it possible to locate the living room, dining room and



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—60

House of Paul Creig, Esq., St. Paul; Kenneth P. Worthen, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Wood and stucco in half-timber patterns.

ROOF:
Shingles stained in varying shades of green, red and yellow.

WINDOWS:
Wood, casements and double-hung.

FLOORS:
Oak throughout.

HEATING:
Hot water.

PLUMBING:
Porcelain fixtures, and brass piping for hot water.

ELECTRICAL EQUIPMENT:
For lighting and cooking.

INTERIOR MILL WORK:
Oak.

INTERIOR WALL FINISH:
Light, sand-finished plaster.

INTERIOR DECORATIVE TREATMENT:
Stained woodwork and natural toned plaster.

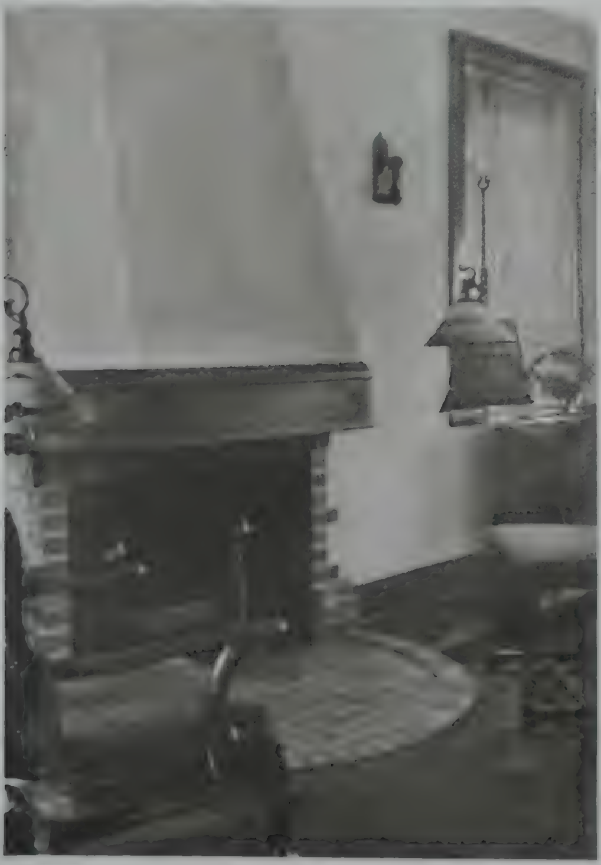
APPROXIMATE CUBIC FOOTAGE:
28,000.

COST PER CUBIC FOOT:
36 cents, including a separate, single-car garage.

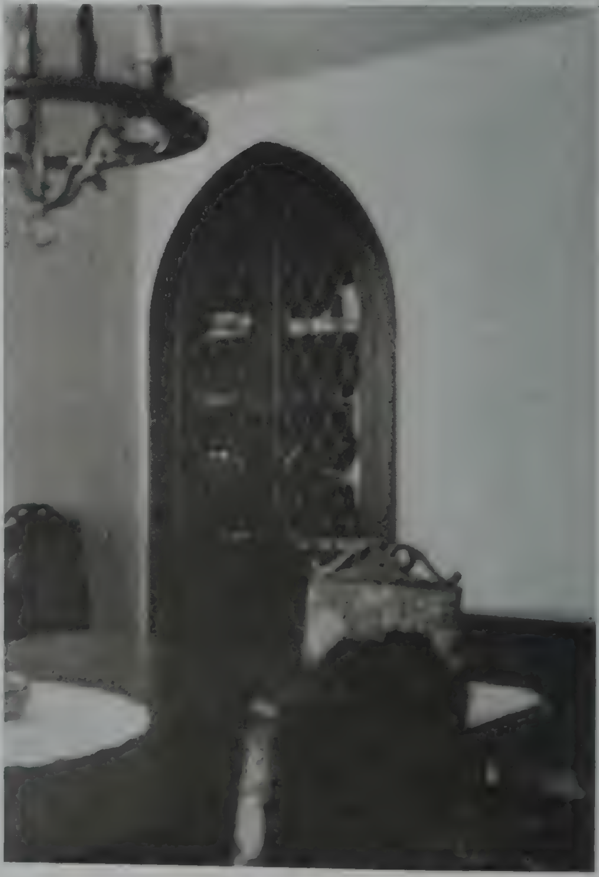
DATE OF COMPLETION:
September 1, 1925.

porch at the back, facing the garden. Above the porch is an outdoor sleeping room, which connects with the principal bedroom. Four bedrooms and one bath occupy the second floor. The small corner bedroom at the rear of the house is intended for a servant, and a servant's bathroom is in the basement.

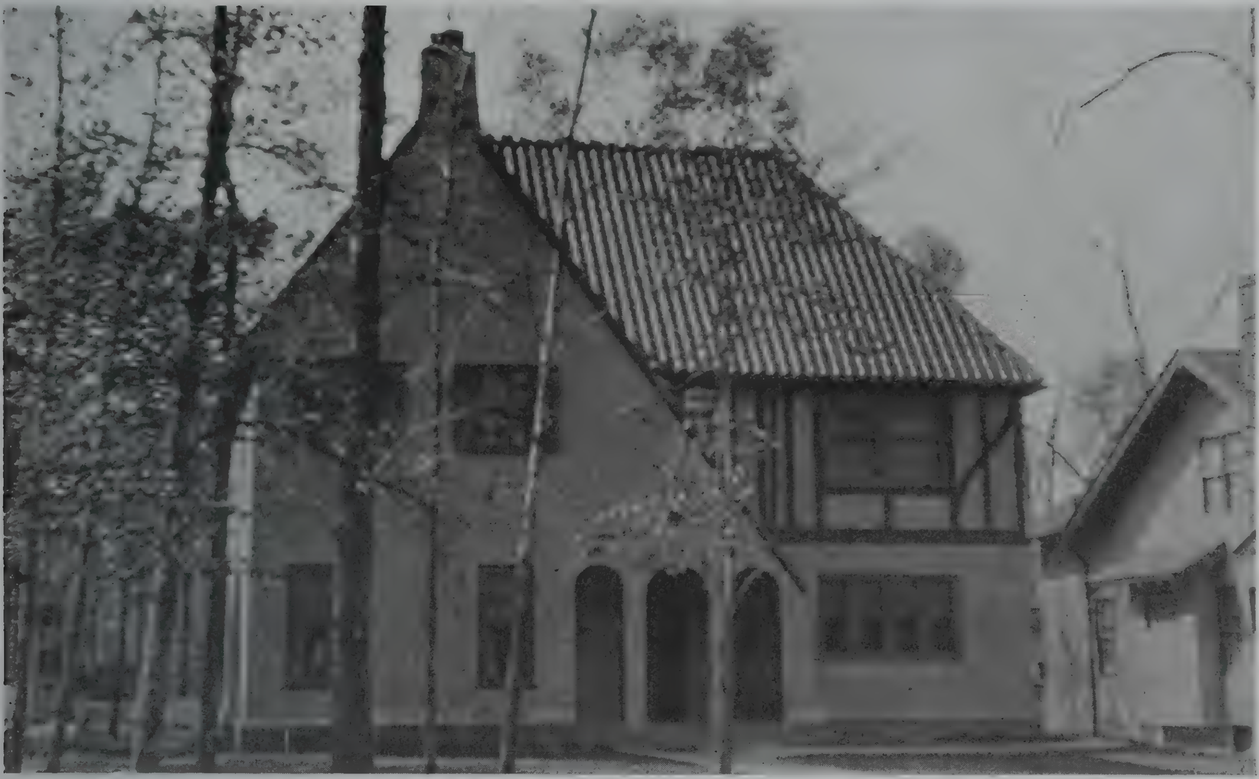
Like many another innovation in domestic architecture, the occasional placing of the kitchen at the front of a house has now been accepted and its advantages are realized. In this instance the advantages of the plan are quite apparent, for there is afforded back of the house opportunity for a garden, into which the windows of living and dining rooms face and which the veranda overlooks. Placing the kitchen so that it faces the street need not be objectionable, particularly when, as in this instance, the service entrance which leads to it is at the side, and easily screened from being viewed from the street.



Fireplace in Living Room



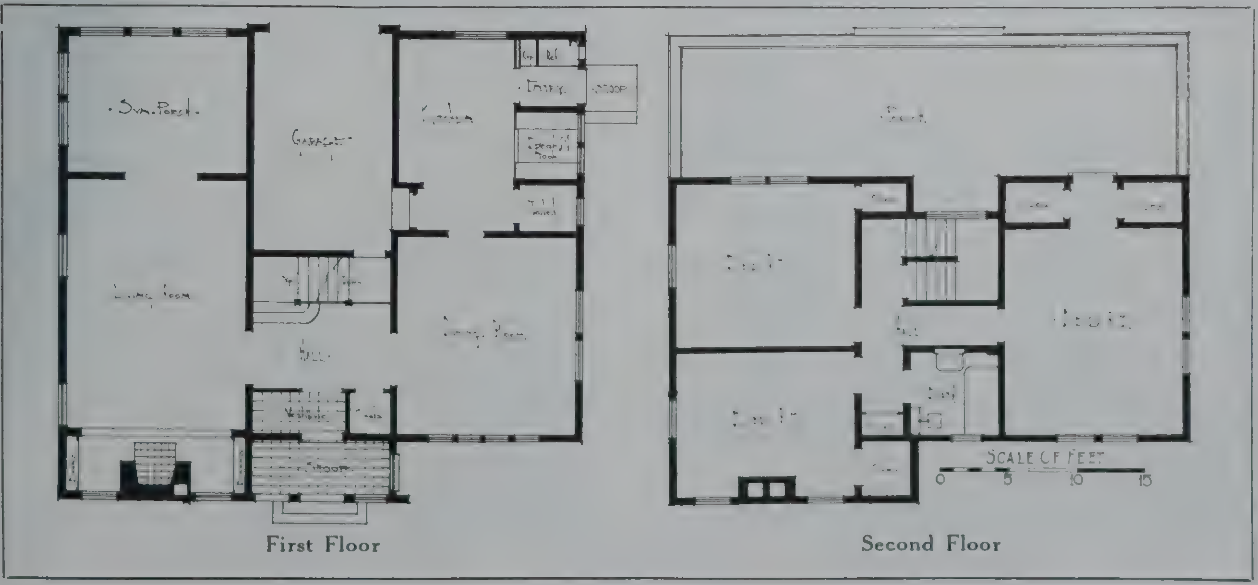
Dining Room Cupboard



HOUSE OF THEODORE CHRISTIENSON, ESQ., ST. PAUL
KENNETH P. WORTHEN, ARCHITECT

A HIGH pitched tile roof, a triple-arched entrance porch and a long sloping roof on the front gable are the prominent features of this simple English house. Half-timber design relieves the monotony of the rough-cast stucco on the walls of the second story, and window shutters emphasize the fenestration of the front gable. An interesting feature of the plan is the symmetrical layout of the rooms on either side of a small entrance hall, at the rear of which, included within the walls of the house, is a small garage. No pantry separates the kitchen and dining room, but a small breakfast alcove opens off the kitchen. This is a well planned house for a small family not worried by the servant problem. The second floor provides three bedrooms.

Examination of the plans of this house shows at once that several departures from the usual planning of small or moderate sized houses have been made. The planning of the living room so that it opens through wide doors into the sun porch at one end and is extended at the opposite end by the fireplace alcove makes what is in effect one room, which might seem to be a trifle long for its width, which is about 13 feet. Windows are on three sides of the room.



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—61

House of Theodore Christienson, Esq., St. Paul; Kenneth P. Worthen, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame, walls, and garage of hollow tile.

EXTERIOR MATERIALS:
Half-timber and stucco.

ROOF:
Tile.

WINDOWS:
Wood casements.

FLOORS:
Oak downstairs; metal upstairs.

HEATING:
Hot water.

PLUMBING:
Enameled iron fixtures

ELECTRICAL EQUIPMENT:
Heating and cooking.

INTERIOR MILL WORK:
Oak stained.

INTERIOR WALL FINISH:
Sand-finished plaster.

INTERIOR DECORATIVE TREATMENT:
Woodwork and plaster painted.

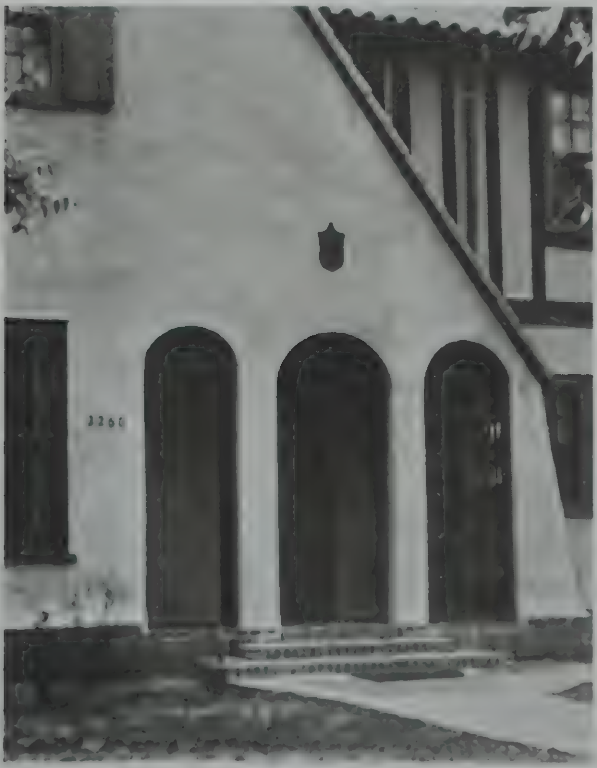
APPROXIMATE CUBIC FOOTAGE:
36,500.

COMPLETE COST PER CUBIC FOOT:
36 cents.

DATE OF COMPLETION:
January 1, 1925.

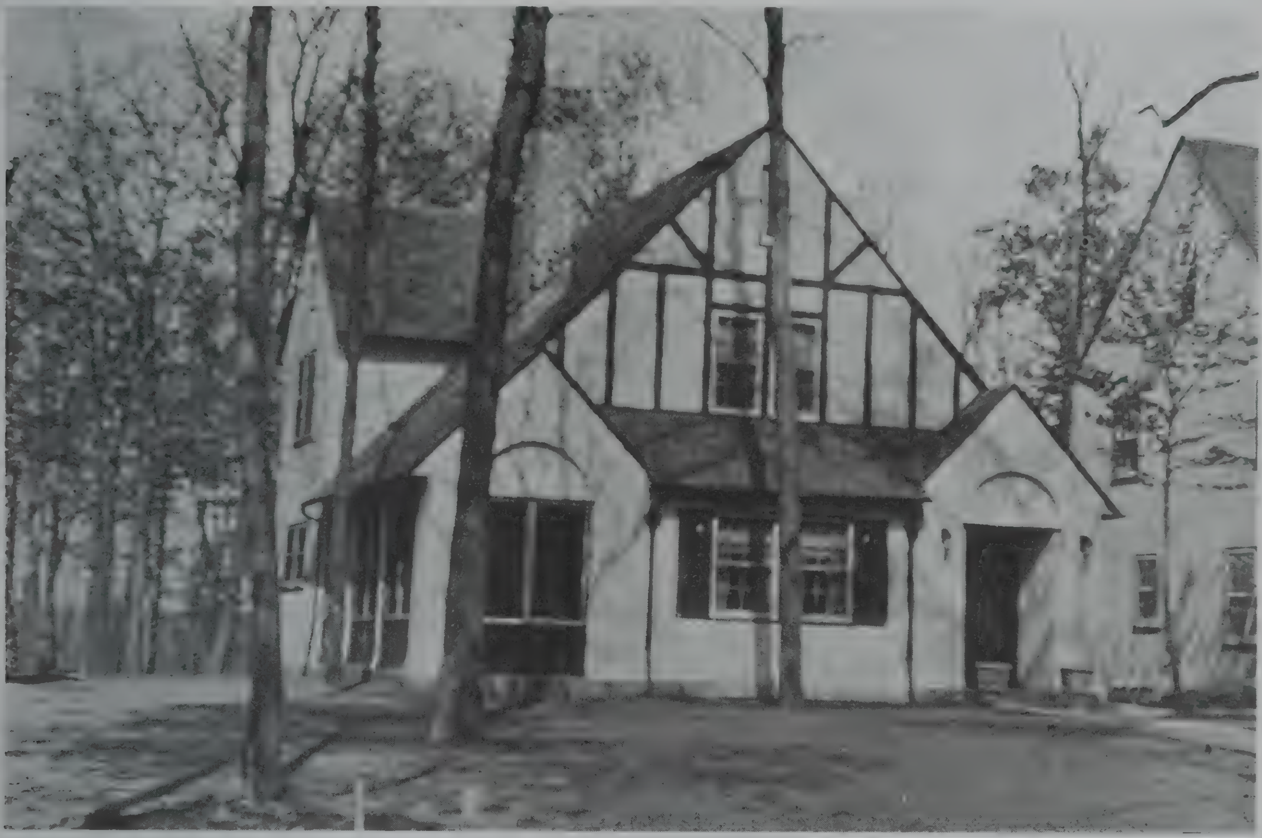
A much more striking innovation, however, is the arrangement of the garage so that it is surrounded upon three sides by the house itself. Use of such valuable area for a garage may be justified, however, particularly if the owner cares for and drives the car himself. Placing the garage in this position probably solves the problems of heating and lighting and the supplying of hot water. A glance at the specifications will show that the architect planned the garage with walls of tile, and the ceiling is fireproof, necessary no doubt to comply with local building laws governing fireproofing of garage construction.

The pleasing appearance of the exterior of the house is due in large measure to the consistent use of materials. One frequently wonders that tile are not being more widely used for roofing, particularly when the walls of a building are built of stucco. All over the world stucco houses are roofed with tile, and there seems to be a certain agreement, historical as well as architectural, between the two. Added to the use of appropriate materials, the house shows an interesting breaking up of the main facade. The little entrance porch, with its three arches, being really a loggia, the depth giving a certain shadow.



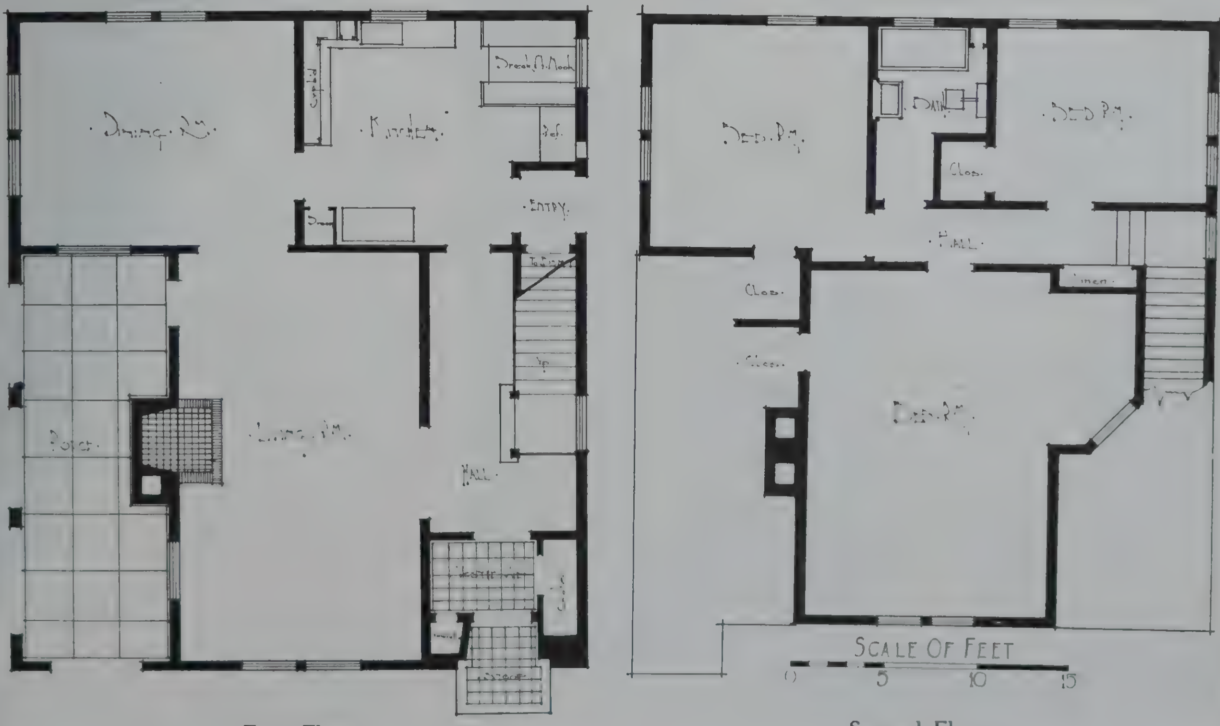
Entrance Detail

Fireplace in Living Room



HOUSE OF F. W. BUTLER, ESQ., ST. PAUL
KENNETH P. WORTHEN, ARCHITECT

LOCATED among tall trees, this stucco house shows an interesting balance in design, not lacking, however, in picturesque quality. Rough-cast stucco is used throughout, relieved on the front gable by half-timber design. Situated close to the ground, red brick is used for the top of the foundation walls above grade, as well as for the entrance steps. The long, sloping lines of the roof of the front part of the house are carried down over the projecting living porch on one side and over the



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—62

House of F. W. Butler, Esq., St. Paul; Kenneth P. Worthen, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Frame and stucco.

ROOF:
Cedar shingles.

WINDOWS:
Wood casements and double-hung sash.

FLOORS:
Oak throughout.

HEATING:
Hot water.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting and cooking.

INTERIOR MILL WORK:
Oak.

INTERIOR WALL FINISH:
Smooth and rough plaster.

INTERIOR DECORATIVE TREATMENT:
Stained and painted woodwork; painted walls.

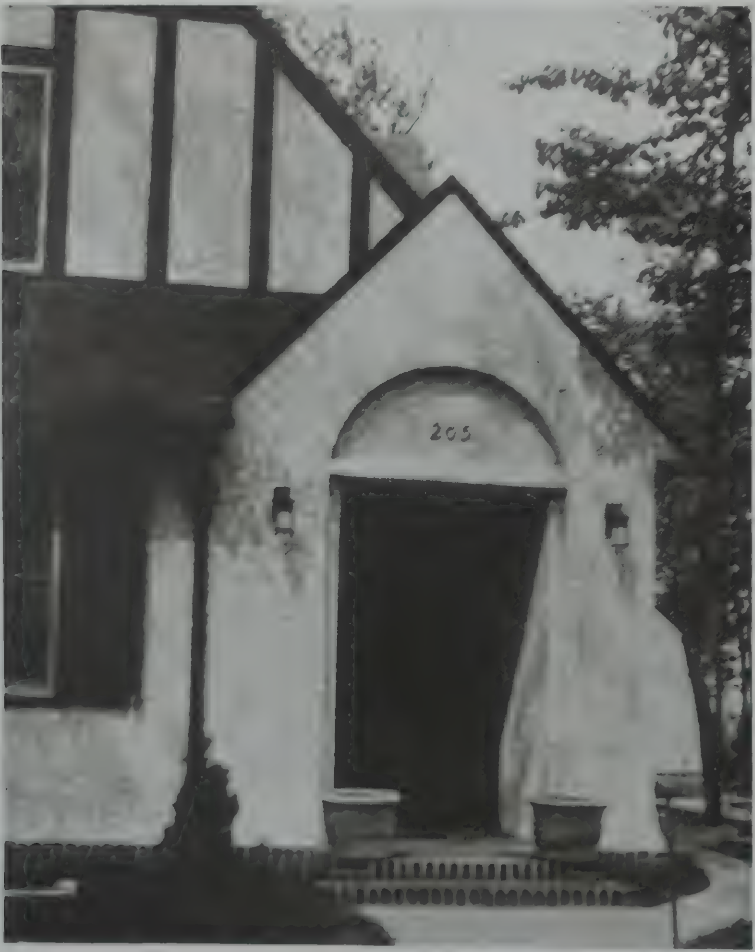
APPROXIMATE CUBIC FOOTAGE:
32,500.

COST PER CUBIC FOOT:
39 cents, including a separate two-car garage.

DATE OF COMPLETION:
February 1, 1925.

entrance porch on the other. The end of the living room, which comes between these two porches, is brought out flush with them and is separately roofed. This unusual treatment is pleasingly proportioned and successfully carried out, indicating one of the many variations possible even in a small, rectangular house. It gives a certain variety to the building.

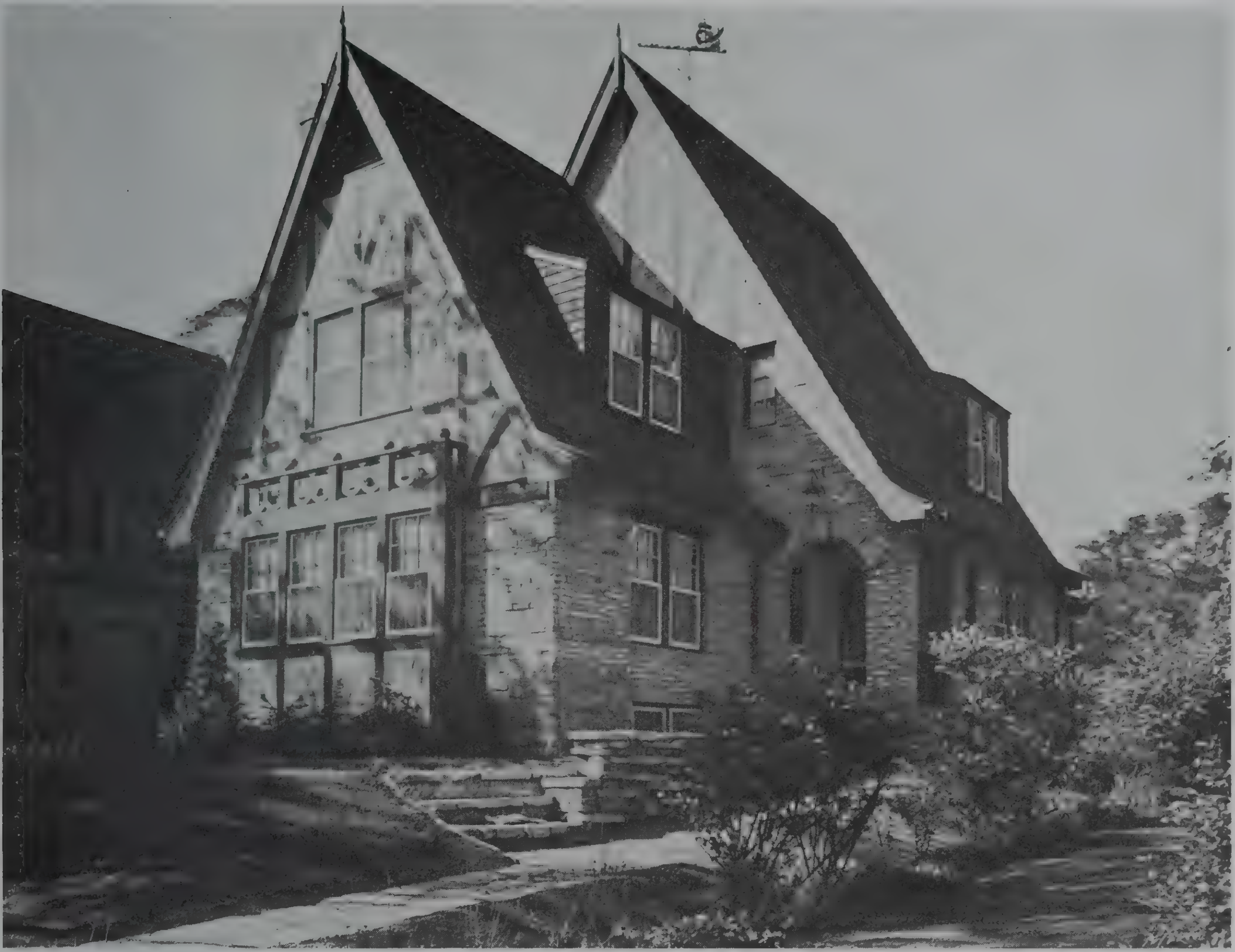
The plan of the first floor shows an entrance vestibule and stair hall at one side, instead of in the center, making it possible to have a spacious living room with adjoining porch, opening out of which is a dining room at the rear of the house, affording privacy and a pleasant view of the surrounding woods. The kitchen is large, and a breakfast alcove is included. The second floor has one large and two small bedrooms, with one bath. Here the closet space seems inadequate, as closets located under sloping roofs seldom provide adequate height for hanging space. For a non-servant *menage,* however, the plan is compact, convenient and practical.



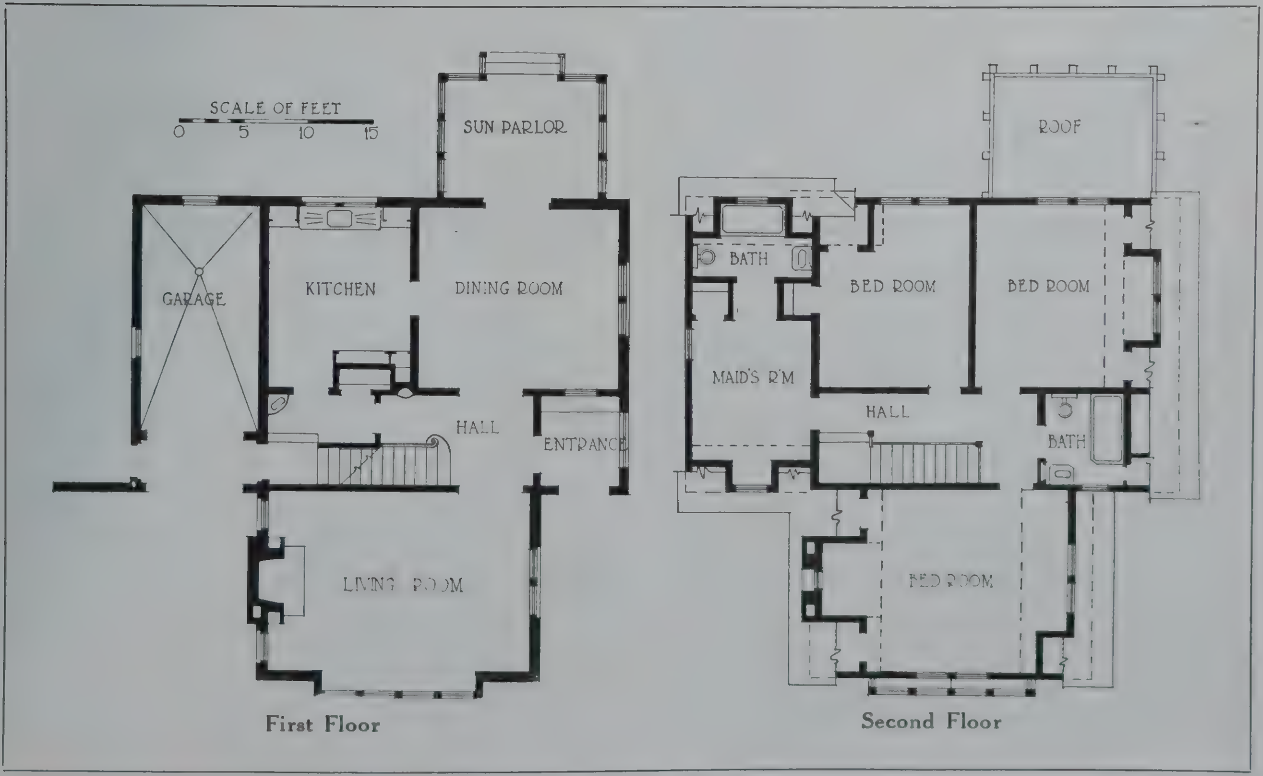
The Main Entrance

One interesting little detail which adds a certain character to the building might be noted. At the main entrance by placing at each side of the door and within the vestibule a small closet (one for coats and one for umbrellas) it has been possible to simulate the appearance of a thick wall of stucco or adobe, which naturally has the effect of adding a note of solidity to the structure, particularly pleasing in connection with the brick steps and pavement of the platform before the door.

It is always wise to place the veranda at a part of the house where it will not be a part of the entrance. Here the veranda fills the area formed by the projection of the dining room beyond the body of the house, and it is reached by a casement window or door from the living room. The plan of the veranda suggests its being enclosed in winter and made a practical sun porch.



HOUSE OF W. C. McDONALD, ESQ., WINNETKA, ILL.
WILLIAM CAMPBELL WRIGHT, ARCHITECT



First Floor Second Floor

FORUM SPECIFICATION AND DATA SHEET—63

House of W. C. McDonald, Esq., Winnetka, Ill.; William Campbell Wright, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame.

EXTERIOR MATERIALS:
Timber, stucco and rough common brick.

ROOF:
Redwood shingles.

WINDOWS:
Wood, double-hung, and casements.

FLOORING:
Red oak, stained brown.

HEATING:
Hot water.

PLUMBING:
Porcelain fixtures and brass piping.

ELECTRICAL EQUIPMENT:
Lighting and cooking.

INTERIOR MILL WORK:
Red gum trim and birch doors.

INTERIOR WALL FINISH:
Plain, rough plaster.

DECORATIVE TREATMENT:
Walnut stained trim downstairs; enamel upstairs.

APPROXIMATE CUBIC FOOTAGE:
40,000.

COST PER CUBIC FOOT:
45 cents.

DATE OF COMPLETION:
December, 1924.

ONE of the most attractive houses recently built in which wood, stucco and brick in half-timber patterns have been successfully combined is this small house in a suburb of Chicago. It is a pity that so attractive a small house should not have more ground about it, since the close proximity of commonplace architecture would obscure it were it not so remarkably good that it seems to stand by itself.

The plan is as interesting and carefully studied as is the exterior. The living room is so placed that it has windows on three sides,—a very desirable feature. Through an attractive entrance porch the main hall is reached, running through the house, with a door at the rear leading to the garage. From the dining room, which is nearly square, casement doors open into a sun parlor or breakfast porch. The kitchen is spacious and well supplied with closets and cabinets. On the second floor are three master bedrooms and bath, and one maid's room and bath, located above the garage. The pitch of the roof has been made sufficiently steep, so that but comparatively little floor space is lost in the second story rooms.

Entrance to Garage

Living Room Gable

INTERIOR ARCHITECTURE

The Imperial Theater at Fontainebleau

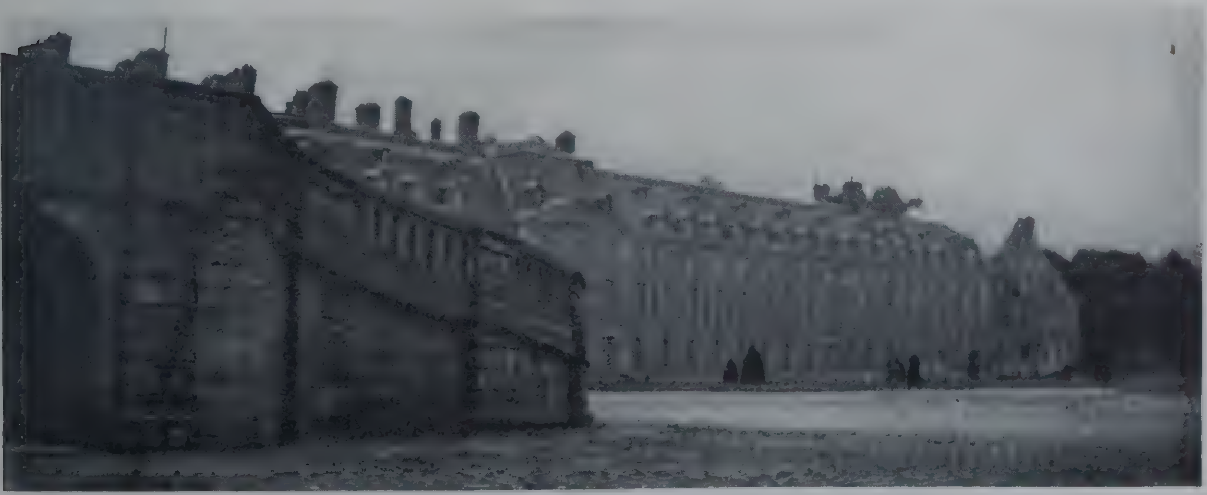
By SAMUEL E. GIDEON

UPON entering the main court to Fontainebleau Palace one would never suspect that the somewhat monotonous, three-storied wing on the right, built by Louis XV, houses the interesting little theater of Napoleon III. There is nothing on the exterior to call attention to the fact, since the theater was built within the walls of the original structure as late as 1854. The gallery was declared unsafe by the Palace architect and, except for the practice of students of the opera in the *Conservatoire Americaine,* the theater is no longer in use or open to the public. The brief historical notes given here are taken from the documents of the Palace, which have been carefully preserved.

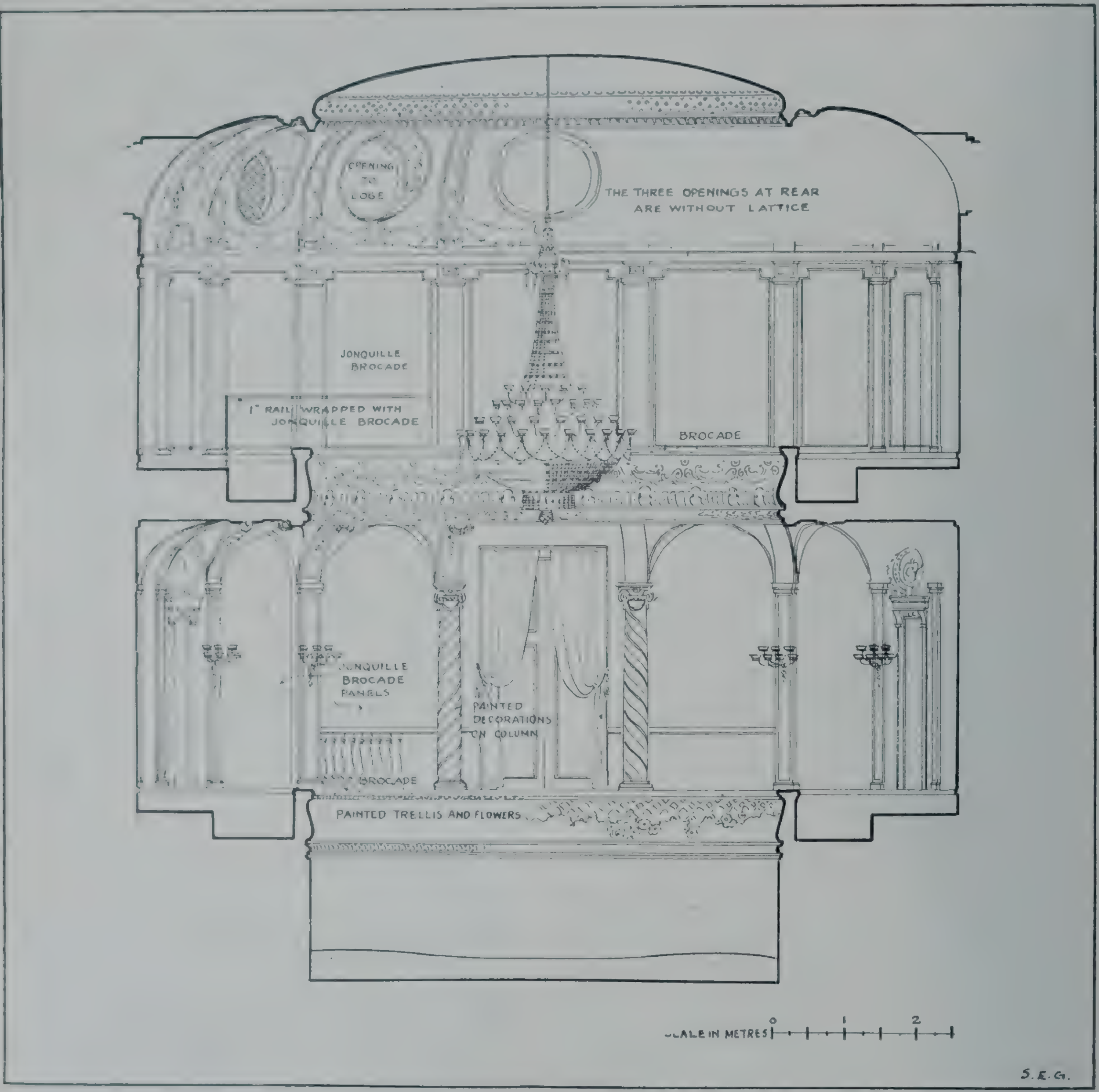
This pleasant room for small theatrical productions is located on the site of the west part of the ancient *Galerie d'Ulysse,* which Louis XV ordered to be destroyed in 1737 to make room for the Louis XV wing, designed for the use of the Princes. Napoleon I assigned this wing to the Military School from 1803 to 1809. The theater, built by the architect Lefuel, was finished in 1856 at the very moment the room of the *ancienne comedie,* located in the *Cour de la Fontaine,* was destroyed by fire. Decorated with extraordinary taste in the style of Louis XVI, the general scheme of the room is in white stucco and gold, animated with garlands of foliage. The domed ceiling, painted by Ch. Voillemot, is a composition of two allegorical figures, "Music and Poetry," surrounded by cupids. The rail of the first balcony is decorated with flowers, foliage and *treillis,* the work of Clement in the year 1854.

The imperial *loge,* situated at the center of the first balcony, was decorated by Mole and Rube in jonquille satin with gilt buttons. The three adjoining parlors are decorated in blue. The *parterre* was reserved for officers and civil functionaries, all in uniform. The first balcony, also upholstered in jonquille satin with gilt buttons, was reserved for the Emperor and Empress and members of their Court. The second balcony, designed like the lower, was reserved for invited guests. The third balcony was a ring of *loges* partially screened by gilded wooden *treillis.* These were also reserved for guests. The furniture of the balconies is in the style of Louis XVI, and the woodwork is decorated in white and gold. The theater can seat 430 persons.

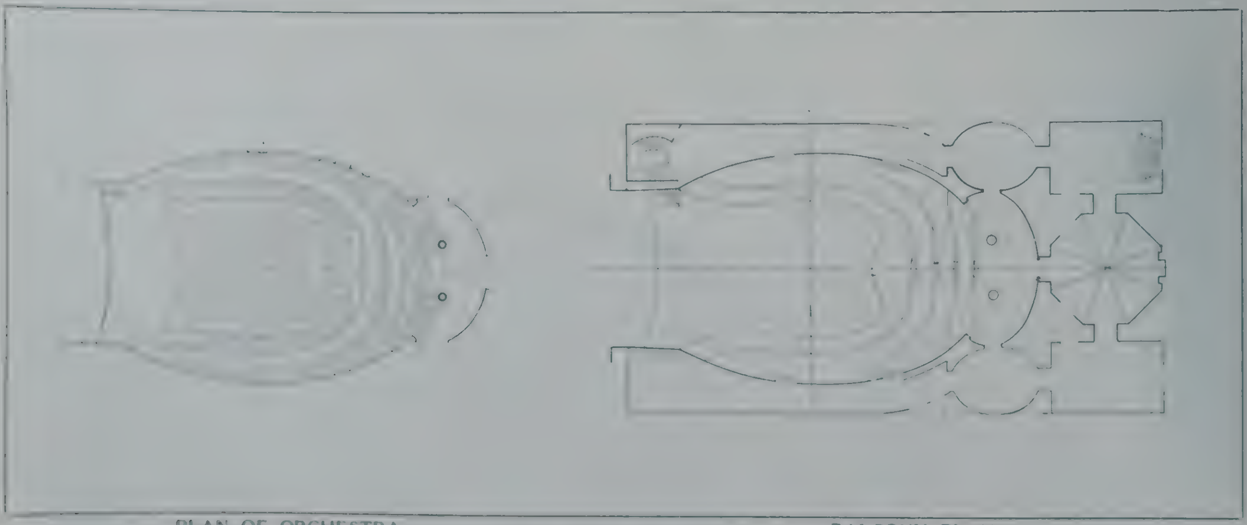
The formal opening of the theater took place on May 18, 1857, in the presence of the Grand Duke Constantine of Russia, the Emperor Napoleon III, and the Empress Eugenie and their entire Court. The actors of the *Theatre Francais* played *Le Mari a la Campagne* ("The Husband in the Country") and *Une Tempete dans un Verre d'Eau* ("A Tempest in a Glass of Water") by Leon Gozlaw. After the performance the Emperor called the artists, Regnier, Delaunay, and Mlles. Fix and Figeac, and congratulated them, and entertained them and all the artists at dinner in the *Galerie Henri II.* On this occasion the Empress wore a gown of white brocade and a diadem and necklace of sapphires, which she treasured above all her jewels. The theater was frequently used while the Court was at Fontainebleau, from 1857 to 1868. The theater stands as a pathetic monument to the magnificent days of Napoleon, Eugenie, and the French Empire.



Detail of Court and Grand Staircase


OPENING TO LOGE
THE THREE OPENINGS AT REAR ARE WITHOUT LATTICE
JONQUILLE BROCADE
1" RAIL WRAPPED WITH JONQUILLE BROCADE
BROCADE
JONQUILLE BROCADE PANELS
PAINTED DECORATIONS ON COLUMN
BROCADE
PAINTED TRELLIS AND FLOWERS
SCALE IN METRES 0 1 2
S.E.G.

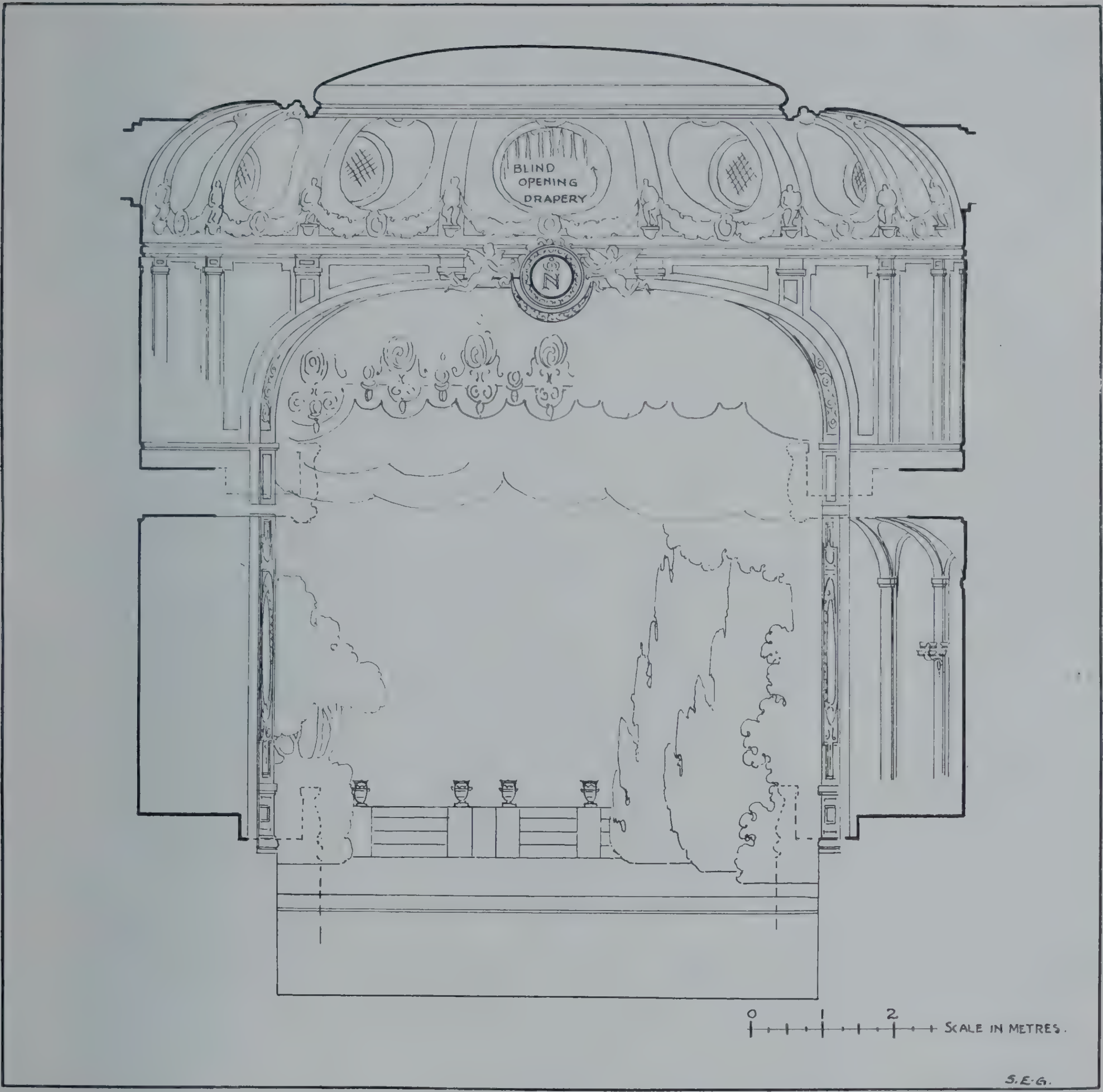
TRANSVERSE SECTION



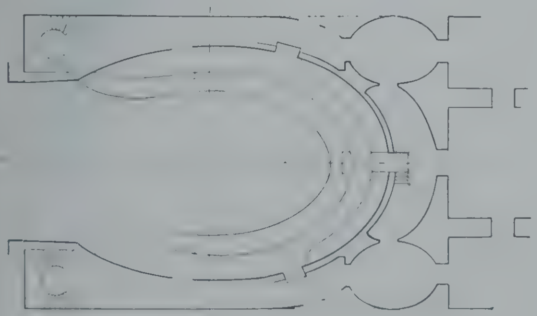
PLAN OF ORCHESTRA

BALCONY PLAN

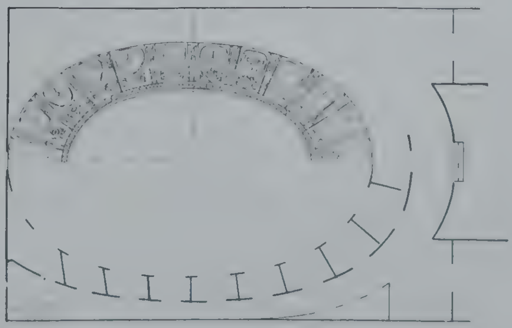
IMPERIAL THEATER AT FONTAINEBLEAU



ELEVATION OF STAGE



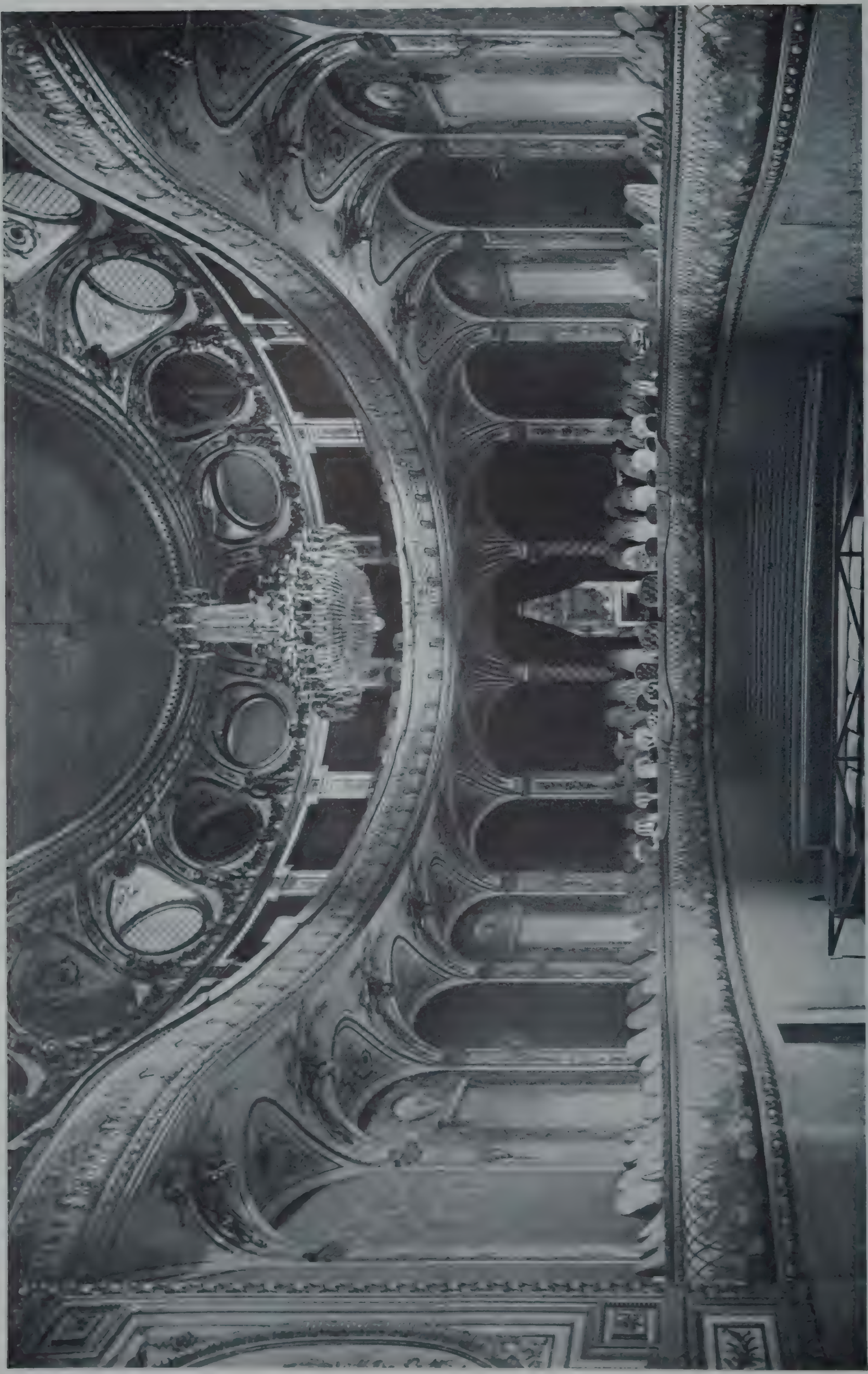
SECOND BALCONY



PART OF CEILING AND LOGES

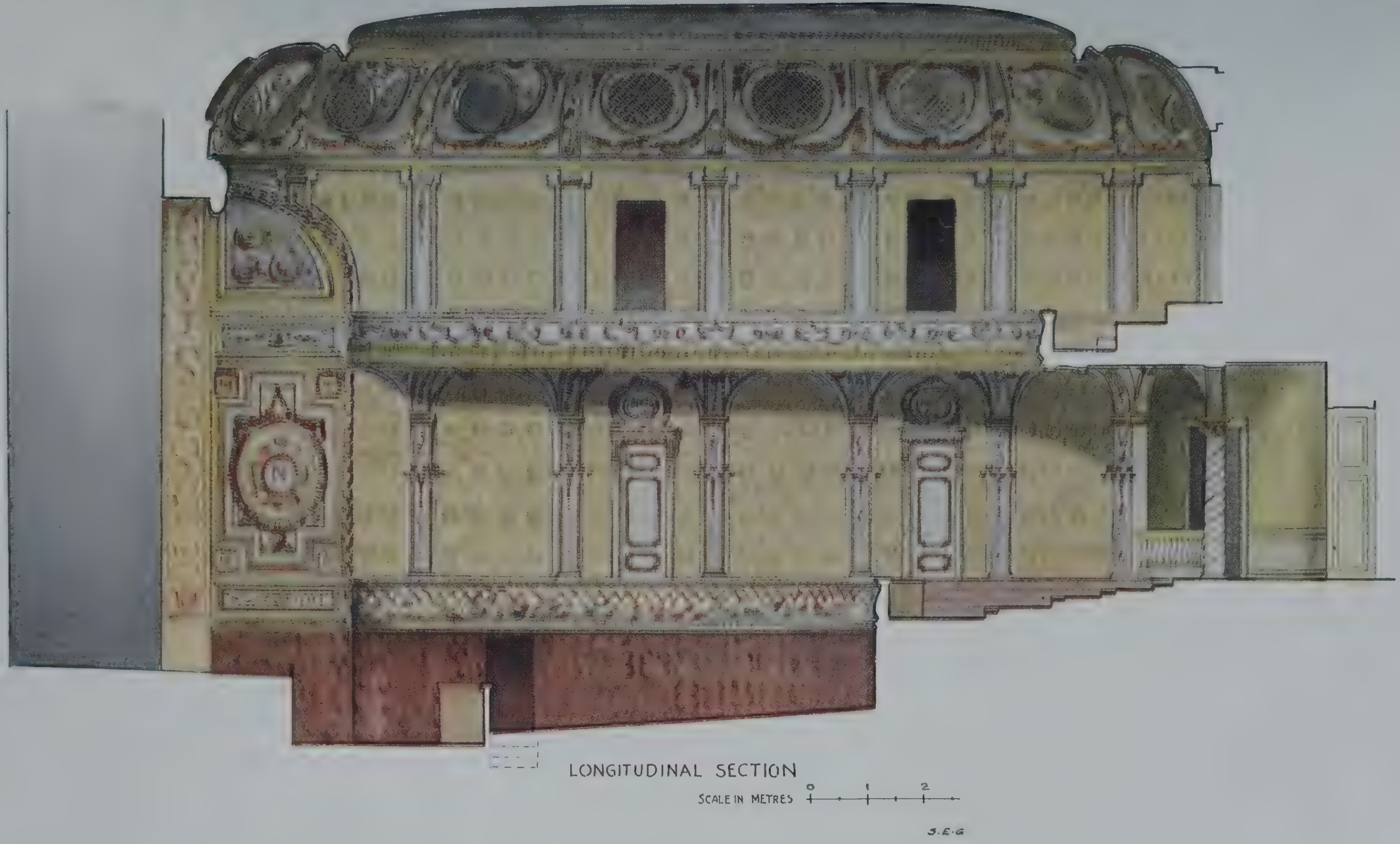
IMPERIAL THEATER AT FONTAINEBLEAU

From Measured Drawings by Samuel E. Gideon



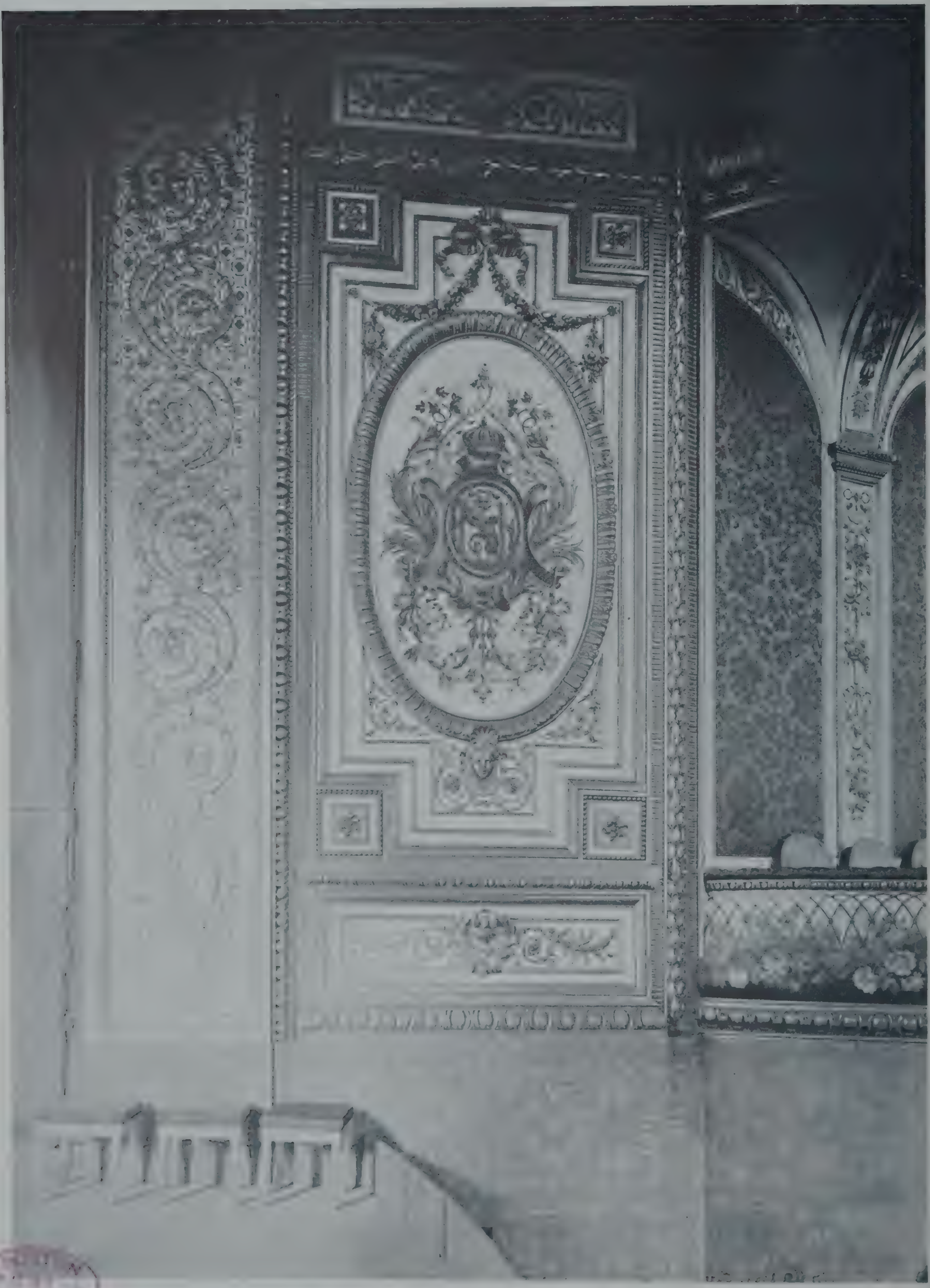
THE ROYAL TIER

IMPERIAL THEATER AT FONTAINEBLEAU



IMPERIAL THEATER AT FONTAINEBLEAU

Measured, Drawn and Colored by Samuel E. Gideon



DETAIL OF PROSCENIUM REVEAL

IMPERIAL THEATER AT FONTAINEBLEAU

DECORATION & FURNITURE

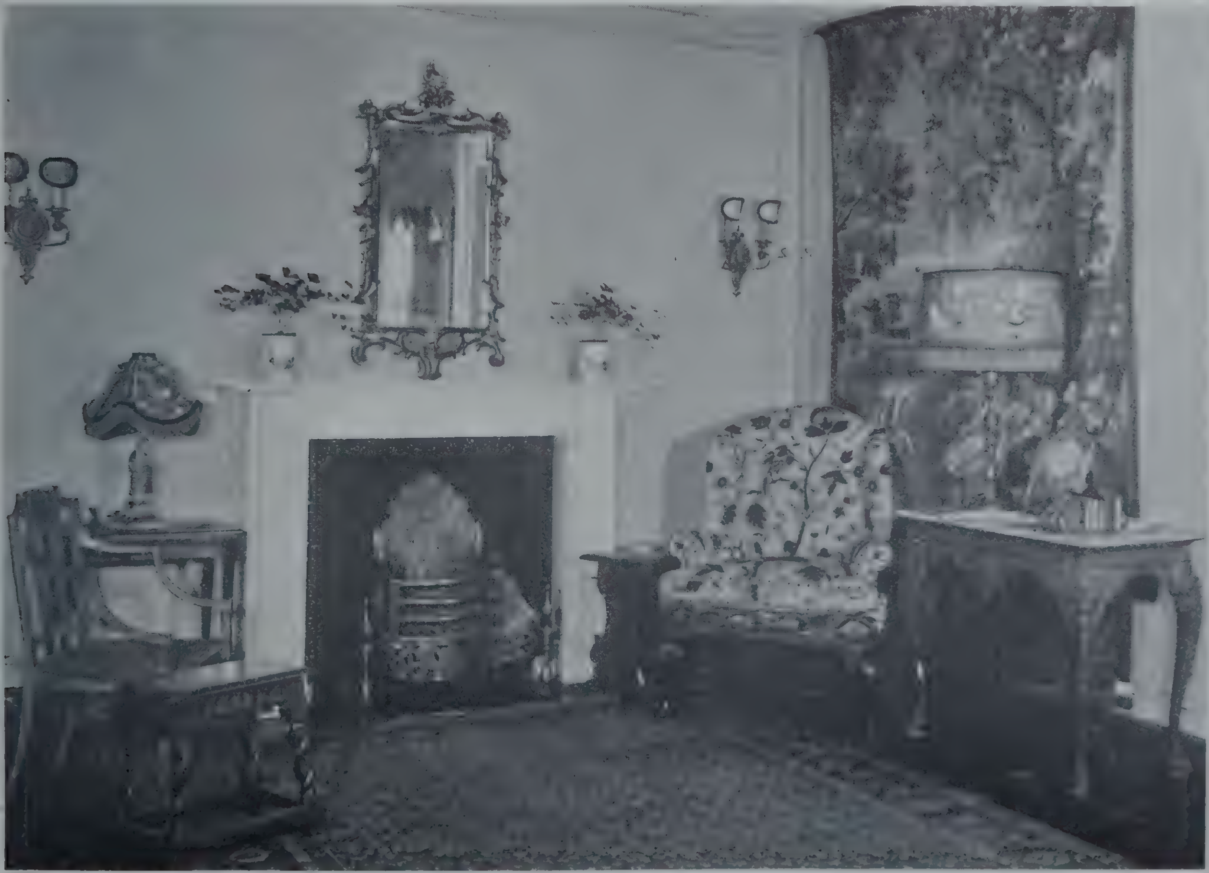
Combining Furniture of Different Periods

By ALFRED LOWDEN

AMERICA is often called the "melting pot" of the nations. We pride ourselves upon the fact that we can take material from every clime and mould it into a unity of strength and good citizenship. But when using, in combination, furniture of different periods, we are arrant cowards. The first thing a client asks a decorator is, "Can I use a French or Italian chair with my English furniture?" In nine cases out of ten the client possesses a typical modern apartment, with stereotyped plain or paneled walls, and a few pieces of English or French furniture, as the case may be. The client seems to think that by placing furniture of one particular style in the first room that happens to suit his fancy, that room is at once transformed into a French, English or Spanish type of room, whereas to have a room true to a particular period it is necessary to have all architectural details correct, as well as the character of the furniture in keeping with the period. To have a proper Louis XV room, attention must be given to the ceiling, paneling, draperies and rugs, as well as to the furniture. So why not get rid of the period bugaboo, and strive for a harmonious combination of different periods and styles?

With early American furniture it is consistent and effective to use French provincial pieces, forming a delightful combination. The simplicity and naïve charm of the French peasant and early American furniture seem to spring from the same source,—the desire for sturdy utility combined with unsophisticated grace. These French pieces are also frequently inexpensive, as well as being particularly suitable for the furnishing of the average country home or small city apartment. Plain or gaily figured chintzes combined with these types of furniture give a domestic atmosphere and unostentatious sense of cheer and hospitality, which the more formal styles often lack.

Furniture of the styles of Louis XVI and the



Photos Loaned by John H. Hutaff, Inc.

An Informal Arrangement of Furniture of Various Styles in a Small Living Room

Furniture of Many Styles Is Placed in An Italian Setting with Pleasing Results

A Grouping of Furniture of the Italian Renaissance, Elizabethan and Queen Anne Periods

Adam brothers may be combined with perfect propriety. Both are true to Classical tradition and all in complete unity, since the Adam style derived its inspiration largely from that of Louis Seize, and mingles agreeably with its French *confrere*. A more delightful room for formal occasions than one containing furniture of the period of the last Louis and that of the Adam brothers cannot be imagined. Walls of an agreeable Adam green, with draperies of material with Classical motifs, produce a dignified and stately ensemble, in which entertaining becomes a delightful as well as a highly graceful function.

The present revival of interest in Spanish furniture and household art in this country is singularly fortunate. Spain is really the one country left today that still has its own private collections of domestic art. So far it has been extremely difficult to penetrate beyond those beautiful wrought iron grilles and to carry away many of the rare and beautiful pieces within. The Spaniard loves his home and jealously guards its contents. So, if you are fortunate enough to possess even one or two Spanish pieces, don't sigh for the moon and wish for the unattainable, for you can very easily fill out your scheme of furnishing with Italian or English furniture of the later seventeenth and early eighteenth centuries, and yet have a room with more interest than a purely Spanish room might possess. For modern use a Spanish room is likely to be a little too austere, and perhaps a trifle too suggestive of mustiness and discomfort; but a few well selected Spanish pieces, it cannot be denied, lend dignity to a room.

Located on the roof of one of New York's tall buildings there is an attractive apartment which has a decidedly Spanish atmosphere, though most of the furniture is really French and English. Crimson draperies of antique damask against old parchment tinted stucco walls definitely establish the Spanish character in spite of the scarcity of Spanish furniture. A fine old Spanish refectory table, with characteristic wrought iron stretcher, is placed before a studio window, with its hangings of crimson damask. An antique vestment of velvet in soft shades of green and crimson thrown over this table helps to bring out the patina of the mellow old wood, creating a delightful sense of color and richness. On one side of the room is an old Gothic chest, in perfect harmony with a near-by English sofa, covered with an exotic patterned crewel. Some typical Spanish arm chairs and monks' stools lend dignity and atmosphere that are altogether delightful. At the far end of the room is a Louis XVI desk of simple lines, which is in entire harmony with the other old pieces.

The most difficult furniture to handle is perhaps that of the period of Queen Anne. The ball and claw foot and cabriole leg seem to insist on their own rights, and are likely to refuse association with pieces of other periods. I have, however, seen it used successfully when combined with pieces of the William and Mary era and the more simple types of Chippendale. Even furniture of the whimsical type of Louis XV may be used with that of the more substantial periods. For years we have been under the impression that draperies to be used with period furniture and antiques should always be of fine damasks and brocades. This is another fetish, since linen can be used without spoiling the effect and atmosphere of the room; in fact an attractive linen has often more character and beauty than a more pretentious material, producing a delightful and informal note in keeping with the democratic character of our lives.

F. Ca.

THE ARCHITECTURAL FORUM

NOVEMBER
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BOOK DEPARTMENT

The Work of an Eighteenth Century Architect

A Review by ROBERT McLAUGHLIN

Books Reviewed

Sir John Soane and His Work.
Concrete, Plain and Reinforced: Vol. I.
Principles of Decoration.
Terra Cotta of the Italian Renaissance.
Masterpieces of Spanish Architecture.
Problems in Architectural Drawing.
The Dome of the Rock in Jerusalem.
Bertram Grosvenor Goodhue, Architect and Master of Many Arts.

Books Received

Monuments of Christian Rome. $3.
English Pleasure Gardens, $2.50. (*The Macmillan Company*).
French Provincial Architecture, $20. (*Charles Scribner's Sons*).

THIS volume, coming as one of the series which deals with Masters of Architecture, is particularly welcome in clarifying the rather shadowy idea of Sir John Soane and his work which generally prevails. The architect is undoubtedly far less present in his work than the painter or sculptor. Architecture is to only a small degree an expression of the individual man. The economic element, which is being emphasized in current writings, is largely the architect's master and is responsible for new and interesting forms. Occasionally a figure appears who seems to stamp his architecture with something quite individual.

Soane came to London in 1768, during the most flourishing period of the Palladian era. A pension from the king, secured through the interest of Sir William Chambers, sent him to Italy for three years. Direct contact with classic sources was bound to have its effect on the vital, original mind which Soane undoubtedly possessed. He was the leading early exponent of the English classic revival in active practice. Piranesi, through his superhuman output of powerfully imaginative studies, had kindled enthusiasm for direct contact with classic sources. Stuart and Revett furnished the data which brought these sources into the London architect's office, but, like many Englishmen, Soane regarded study of Palladio and other theorizers of the Renaissance as acquiring knowledge obtained at second hand. Soane shared with Piranesi a love for the motives and paraphernalia of classic architecture, by the sheer weight of whose collective effect richness could be produced. His early years were filled with elaborate and imaginative schemes for bridges and palaces,—never executed. His later years were devoted to the collection of the drawings and fragments now housed in the Museum which bears his name. Soane, the son of a master bricklayer, was keenly alive to the value that an architect derives from surrounding himself with sources of beauty and learning, and he put his knowledge to account.

He was too lone a figure, too original without being supremely great, to have executed a great deal of work, and much that he has done has been destroyed. His chief work, a large part of the Bank of England, is receiving special attention now, as alterations are in progress which will carry that structure up into the air. His work there has most of the characteristics typical of English monumental architecture of the period. The English have seldom been at home in monumental work. During Soane's period, at any rate, grandeur was frilled with fussiness, simplicity becomes bareness, and richness is usually misapplied. Soane shows little evidence of overcoming this lack of organization and unity. His work is important because of the often unsatisfactory but always interesting element of life and originality that he imparts to his buildings. His exteriors show a restlessness that might have found exercise in a Baroque period. His interiors, on the other hand, often show a plainness and thinness that is depressing. The Consols and Colonial Offices of the Bank of England certainly suffer by comparison with a similar scheme in the main office of Mr. Morris' Cunard Building in New York.

Turning to his domestic work, Soane's stock at once picks up; here, like most Englishmen, he is thoroughly at home. The facade of his own residence, now the Soane Museum, will afford a delightful surprise to the reader who has not known of its charm. Quiet and reserved, it is in the excellent taste of the London town house. We feel that Mr. Birnstingl fails to do justice to the spontaneity and unusual arrangement of the entrance bays, which seem quite satisfactorily tied in with the flanking wall treatment. One of the most interesting of Soane's buildings is the mausoleum at the Dulwich Gallery. Its manner of building up from cruciform to square is very successful, and its fine, flat surface detail is beautiful in character and very well handled.

This book is well worth while, not because it reveals any great amount of good architecture, for there is much that is quite bad illustrated here. It does, however, present a most interesting figure, original and provocative. Soane taught and lectured widely on architecture, brought together his remarkable collection, devoted his energies to the designing and erecting of buildings, and (far from least of all) he introduced fire-resisting construction and a type of central heating into England. Mr. Birnstingl calls him the first modern English architect.

SIR JOHN SOANE. By J. J. Birnstingl. In series of Masters of Architecture. Edited by Stanley G. Ramsey. 30 pages and 35 illustrations from photographs by F. R. Yerbury. Price $2.50. Charles Scribner's Sons, 597 Fifth Avenue, New York.

TERRA COTTA OF THE ITALIAN RENAISSANCE. 200 Plates, 9 x 12 ins. Price $3. The National Terra Cotta Society, 19 West 44th Street, New York.

ARCHITECTS who are concerned with the careful and critical study of precedent, particularly as it applies to the ornament and decoration of actual structure, owe much to the research which has been involved in the publication of the various books and brochures issued by the National Terra Cotta Society. This organization has never been content to skim the surface of a study of the history of terra cotta, and to secure the data which have made its publications so valuable, trained architects have been commissioned to search out the districts, chiefly in Italy, where the masterpieces of the terra cotta workers' craft exist and secure data which when offered later in published form, have added immeasurably to the equipment which makes much of our modern architecture so accurate. So with the present volume, based upon the researches of Arthur Frederick Adams during the summer of 1923, the 200 photographs from which these plates were made having been selected from a far greater number taken by him at the time.

Terra cotta achieved its greatest triumphs in Italy during the Renaissance. Architects of the period realized that by its use ornament and color which could be had in no other way were to be had at no great cost, and their patronage supplied the demand without which no craft can flourish. To this coöperation between architect and craftsman are due the matchless examples of terra cotta, as beautiful today as centuries ago, with which are identified the great names of Luca della Robbia, Donatello, Bramante, Brunelleschi, Michaelangelo and Alberti, and many other great Italians.

Modern workers in terra cotta have furnished undoubted proof that the masters of the past produced little if anything which could not be made today provided the demand which stimulated their efforts existed now. Much admirable work in terra cotta has been produced, and much is continually being done, and yet one wonders why the revival of the wide use of this material comes so slowly. Many of the motifs supplied in this volume need little or no adaptation to make them suitable for use today, and it is possible to fire pieces of far greater sizes than could be placed in kilns used centuries ago, owing to improvements in kiln building.

This excellent volume is essentially for the use of the designer, and in suggesting the vast possibilities which lie in the use of terra cotta it will undoubtedly fulfill its destined purpose with considerable benefit to architecture.

MASTERPIECES OF SPANISH ARCHITECTURE; Romanesque and Allied Styles. 215 pages. 8¾ x 11¾ ins. Price $6. The Pencil Points Press, Inc., New York.

IT would be difficult to over-estimate the value to architecture of reprints of works on design which by reason of their rarity are now almost unprocurable. To the "Library of Architectural Documents," which already includes three excellent volumes, there is now added this important work on Spanish architecture, a reprint of plates or portions of plates from the great work, "Monumentos Arquitectonicos des Espana," published by the Spanish Government during the last century. The selection of the plates has been made with considerable care and taste, and the descriptive text by John V. Van Pelt adds to the book's interest and value.

PROBLEMS IN ARCHITECTURAL DRAWING. By Clinton V. Bush and Edgar D. Townsley. 64 pages and plates, 9 x 12 ins. Price $1.08. Bruce Publishing Co., Milwaukee.

STUDENTS of drafting or architectural drawing often find difficulty in visualizing intelligently the details of construction which are portrayed in their drawings. The average student of drafting has no opportunity of watching the erection of a building such as is likely to be the subject of his studies, and, as every advanced student knows, it is important to have a visible demonstration of construction if the drafting of details is to be intelligently done. It requires actual experience if the principles of construction are to be understood.

This work might be described as a study or exercise in architectural drawing for a student who has mastered elementary mechanical drawing. The exercise deals with such drafting as would be involved in planning a small modern frame house of Colonial design, and the subject matter is divided into two parts, the first presenting each problem in pictorial form, either isometric or perspective, while the second shows the working drawings in orthographic projection. Along with the drawings themselves there are given ample instructions regarding planning and such structural details as walls, stairways, etc., all fully illustrated and made as plain as possible, the entire work being prepared with a view to aiding the student toward constructive thinking in terms which relate architectural drawing to actual building construction. The work has been prepared by Clinton V. Bush, Director of Industrial Education, at Jamestown, N. Y., and Edgar D. Townsley, of Ithaca, N. Y.

THE DOME OF THE ROCK IN JERUSALEM. A Description of Its Structure and Decoration. By Ernest Tatham Richmond. 111 pages besides numerous plates. 10 x 12½ ins. Price $42 Net. Oxford University Press, New York.

AS the Gothic cathedrals which arose in western Europe during the twelfth century and the thirteenth were visible expressions of fervent faith, there have been built in the East at various times structures which have been erected as symbols of veneration of sacred places or holy personages. Venerable Jerusalem enjoys the distinction of being held sacred by the Jewish and the Mohammedan as well as by the Christian world, and in addition to the spots made sacred by events in the life of Christ, venerated by Christians of all bodies, there are other spots sacred to Islam, and among them is the Rock, closely connected with the life of the Prophet.

This elaborate and superbly produced work is a record of the architecture and ornament of the "Dome," the structure which centuries ago was built over and around the Rock, the volume being prepared at a time when after more than 800 years Jerusalem was occupied by European forces. The typically Mohammedan architecture and the sumptuous ornament, largely of tiles and mosaic, forms in which the East has always excelled, render the "Dome" a masterpiece of oriental building, and its splendor has been shown in this volume by a large number of plates in color which are of great importance to students of design, while the structure itself is of interest to architects. The author, who is a Fellow of the Royal Institute of British Architects, writes from the point of view of an antiquarian and historian as well as from that of an architect, thus obtaining valuable vision.

CONCRETE PLAIN AND REINFORCED, Vol. I. By Frederick H. Taylor, Sanford E. Thompson, and Edward Smulski. With a chapter by Henry C. Robbins. Fourth Edition. 969 pp., 5¾ x 9 ins. Price $8 Net. John Wiley & Sons, Inc., New York.

THE scientific study which is being made of concrete is due no doubt to its steadily increasing use in building and engineering operations of many kinds. Most architects and engineers, absorbed as they probably are in the claims and demands of varied practice, have little opportunity for the experiment and research to which progress in the use of any material is due; happily, however, architects and engineers have always been ready to make known for the general good any special knowledge of which they may become possessed, and thus what might be called the *materia* of the scientific use of concrete is made wider and deeper. So in this instance, for with the appearance of a fourth edition the present work has been entirely re-written and is appearing in three volumes, the first covering reinforced concrete design and construction, the second concrete materials and construction, and the third special structures in reinforced concrete, all this very carefully prepared in accord with the latest and most advanced practice.

Theory and methods have been presented in the most simple and usable forms, and several details, such as designs of columns of various types adapted to special uses, have been planned to accord with various specific city building codes, while the volume is replete with diagrams and tables of every kind. A work on concrete which would be more valuable to the engineer and also to students of engineering is not likely to appear soon.

PRINCIPLES OF DECORATION. By R. G. Hatton. 224 pp., 5¼ x 8½ ins. Price $3.50. Charles Scribner's Sons, New York.

GROWTH of good taste in domestic architecture, which has been going on during the last decade, has quite naturally involved growth of interest in interior decoration which is, of course, the logical complement of architecture if not actually a part of architecture itself. This interest has developed the establishment of many schools in which interior decoration is being taught and the publication of countless volumes on the subject, many of which are too superficial or casual to be of permanent value, but several of which are sufficiently useful to merit real and serious attention.

With studying a subject so broad it is necessary to divide it into various departments, and one of the most important is concerned with design, which may be considered from the standpoints of suitability, æsthetic quality, melody, scale, proportion, clearness and under several other headings, each of which requires study by anyone who would attain a firm grasp upon the subject.

Professor Hatton, who has already prepared a number of works on drawing, composition and perspective, is here concerned largely with design, treating historical design in a way as free as possible in order to develop independence on the part of the designer. As the Preface puts it, "the tenor of the book is, on the whole, to urge the decorator to approach his work with the intention of making it vivacious and effective, intellectual and interesting, and to proceed as if no decoration had ever existed before, not from conceit of his own abilities, nor in contempt of the past, but in order to get rid of the tendency to use inherited ornamental forms."

GRADE SCHOOL BUILDINGS; BOOK II

IN no department of architecture have the last ten years seen quite the progress which has been made with schoolhouses, a class of buildings of the first importance, since they exert a strong influence upon their communities, and by their architectural excellence or the lack of excellence they elevate or lower the architectural standards of entire districts. Study of school structures, particularly at the hands of a group of well known architects, has resulted in their being given a high degree of architectural distinction and dignity in the way of design, while study directed toward their planning and equipment has led to their being practical and convenient far beyond what was regarded as an advanced standard of efficiency even a few years ago.

Kensington Schoolhouse, Great Neck, N. Y.
Wesley Sherwood Bessell, *Architect*

THIS volume, a companion to another published in 1914, records the results of endless study and experiment in different parts of the country, summed up and presented. By illustrations of exteriors and interiors, by floor plans and carefully written descriptions and articles by well known architects and educators, the present high standard of schoolhouse design is made plain, and these results which have been achieved by a few architects and school boards are thus made possible to all architects who are interested in schoolhouse design. The compiler has selected from almost 1000 exteriors and floor plans the school buildings to be illustrated, and the volume records "a process of innovation and elimination, namely, the introduction from time to time of features which have been deemed desirable and practical, and the elimination of things which, owing to changed school methods, are no longer required."

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The Work of a Versatile Genius

A Review by E. DONALD ROBB

A HANDSOME volume of drawings, sketches, architectural designs and reproductions from photographs of executed work, under the happily chosen title "Bertram Grosvenor Goodhue, Architect and Master of Many Arts," has recently come from the press of the American Institute of Architects. While unavoidably duplicating much that was published some years ago in a somewhat similar volume, there is a great deal of new material in the present work, and, taken together, the two form a very complete record of the varied work of this gifted artist and architect. In addition to the large number of illustrations, there is an intensely interesting biographical sketch by the editor, Charles Harris Whitaker, and other articles of appreciation and personal reminiscence by Ralph Adams Cram, Lee Lawrie, George Ellery Hale, C. Howard Walker, and Hartley Burr Alexander. Goodhue's personal charm and the ideals which led him in the pursuit of solutions to modern architectural problems are ably and sympathetically set forth in the pages of text which precede the illustrations and add much to the reader's appreciation and enjoyment. It is a comprehensive work.

Parish House, St. Peter's Church, Morristown, N. J.
From "Bertram Grosvenor Goodhue, Architect and Master of Many Arts"

Careful study of Goodhue's work, from his early days to those of his mature years, shows a gradual and consistent development away from traditional forms and toward something most decidedly personal. His constant effort to solve modern problems,—especially the problem of the modern church,—in modern ways was often crowned with success because of his very active inventive faculties. The exercise of these faculties, prompted by a desire to create new architectural forms and compositions, shows itself in his earliest church designs, probably before he felt any serious need for a more modern expression of architecture on a large scale. Never having developed a strong attachment for any of the monuments of Gothic architecture through first-hand study (he made almost no trips to Europe for that purpose), his imagination had a freer opportunity to express itself in original ways. He could not be called a deep student of the principles or details of Gothic architecture, and yet his temperament was forever expressing itself in ways peculiarly Gothic in principle, and therefore fundamentally Gothic.

With the single exception of the new Liverpool Cathedral, he was little influenced by the work of any other architect, living or dead. Although he possessed a good library, he made comparatively little use of it. He got his inspiration from within his own fertile mind, and found therein ample material to carry his work to its logical completion. The same might be said of his renderings in pen and ink, water color, lithographic, pencil or what not,—or combination of all these,—he was seldom influenced by anyone. He used to confess to a strong desire in his early youth to imitate the masterly pen drawings of Herbert Railton, but if this was actually the case, there is little evidence of it in any of his work, either early or late.

Although Goodhue has long held a prominent place among renderers in pen and ink, this rather limited means of expression soon proved an insufficient outlet for his richly artistic nature, and we find him excelling in water color, and in combinations involving every medium under the sun, —anything to give him the result he strove for. Some of his best drawings are in mediums other than that in which his reputation was so early made. The two pencil drawings of the Peterson house at Brewster, N. Y., the Persian fantasy made for Elmer Grey, and several sketches made on the margins and fly leaves of books stand out conspicuously as examples of these. Two other drawings in pen and ink after the manner of woodcuts deserve to be noted, not only because of their excellence, but as illustrations of the artist's versatility. One of these is a composite of many of his architectural works, among which we recognize the West Point Riding Hall, the California Building at San Diego, St. Thomas' Church and, crowning all, the unfinished cathedral at Baltimore. The singing swan in the shield might seem to signify that he regarded this as his final achievement! The other of the two drawings is a decorative composition based on the city plan of Baltimore in pseudo perspective, with the proposed cathedral looming, large and impressive, in the distance.

Toward the end of the volume are many illustrations of examples of sculpture produced under Mr. Goodhue's direction by Lee Lawrie, those for the Nebraska State Capitol being especially worthy of note. These are followed by a few specimens of bookplates, borders and decorative lettering, representing, however, but a fraction of Goodhue's work in this field. Taken as a whole, the volume is a worthy tribute to a great architect.

BERTRAM GROSVENOR GOODHUE, Architect and Master of Many Arts. Text and 273 Plates, 11 x 14 ins. Price $30. Press of the American Institute of Architects, New York.

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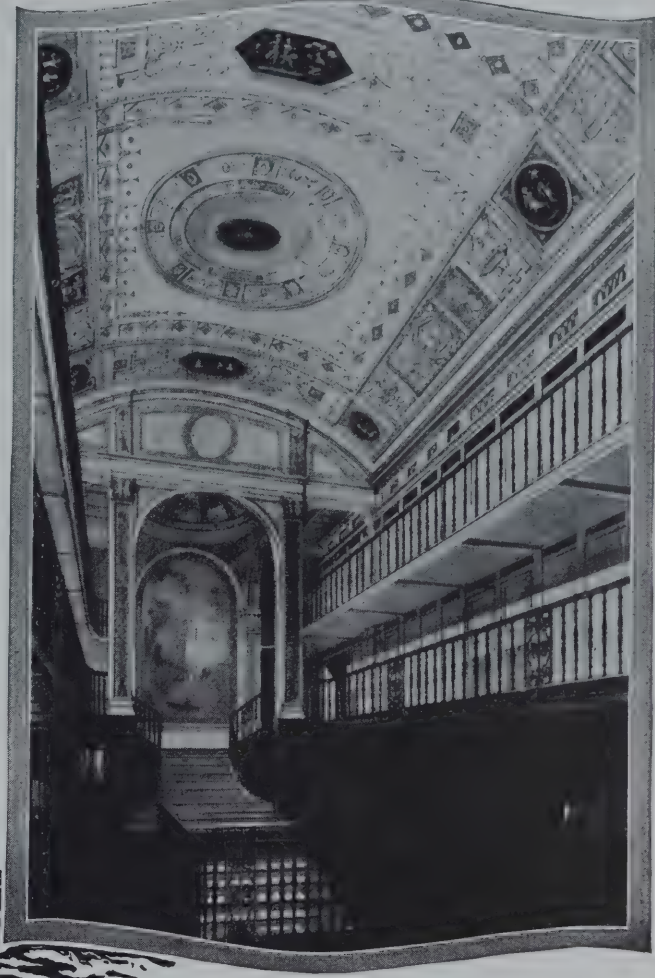

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CONTENTS *for* NOVEMBER 1925

PLATE ILLUSTRATIONS — Architect — Plate

Temple Tifereth Israel, Cleveland .... *Charles R. Greco* 73-80
New Nicollet Hotel, Minneapolis .... *Holabird & Roche* 81-84
Olympia Fields Country Club, Olympia Fields, Ill. .... *George C. Nimmons & Company* 85-88

LETTERPRESS — Author — Page

Cover Design: A Doorway at Fredericksburg, Va. ....*From a Drawing by Louis C. Rosenberg*
The Editor's Forum 51
North Door, Cathedral of St. Cyr, Nevers, France *From a Drawing by Louis C. Rosenberg* Frontispiece
Temple Tifereth Israel, Cleveland *Richard R. Stanwood; Charles R. Greco,* .... *Architect* 257
Competition for the Design of the First Baptist Church, Plainfield, N. J. 261
Banks and Bank Buildings, Part II .... *Alfred Hopkins* 265
Savannah's Architectural Background .... *William P. Spratling* 273
Olympia Fields Country Club, Olympia Fields, Ill. *George C. Nimmons & Company, Architects* 277
The Building Situation 281

LETTERPRESS (Concluded) — Author — Page

Power and Heating Plants .... *J. J. Cosgrove* 283
New Nicollet Hotel, Minneapolis .... *Holabird & Roche, Architects* 287
Town Halls .... *Charles G. Loring* 289
Robbins Memorial Town Hall, Arlington, Mass. .... *R. Clipston Sturgis, Architect* 297
Municipal Building, Plainfield, N. J. *Laurence F. Peck and William Lawrence* .... *Bottomley, Associated Architects* 299
Huntington Town Hall, Huntington, N. Y. ......*Peabody, Wilson & Brown, Architects* 301
Tewksbury Town Hall, Tewksbury, Mass. ......*Kilham, Hopkins & Greeley, Architects* 303
Weston Town Hall, Weston, Mass. ....*Bigelow & Wadsworth, Architects* 305
Dover Town Hall, Dover, Mass. .....*Kilham, Hopkins & Greeley, Architects* 307
Kennebunk Town Hall, Kennebunk, Me. ..*Joseph D. Leland and Company, Architects* 309
Town House at Peterboro, N. H. ....*Little & Russell, Architects* 311
Dining Room in Napoleon's Apartments at Fontainebleau .... *C. Hamilton Preston* 313
Decorative Walls and Backgrounds .... *Pierre Dutel* 319

PARKER MORSE HOOPER, Editor

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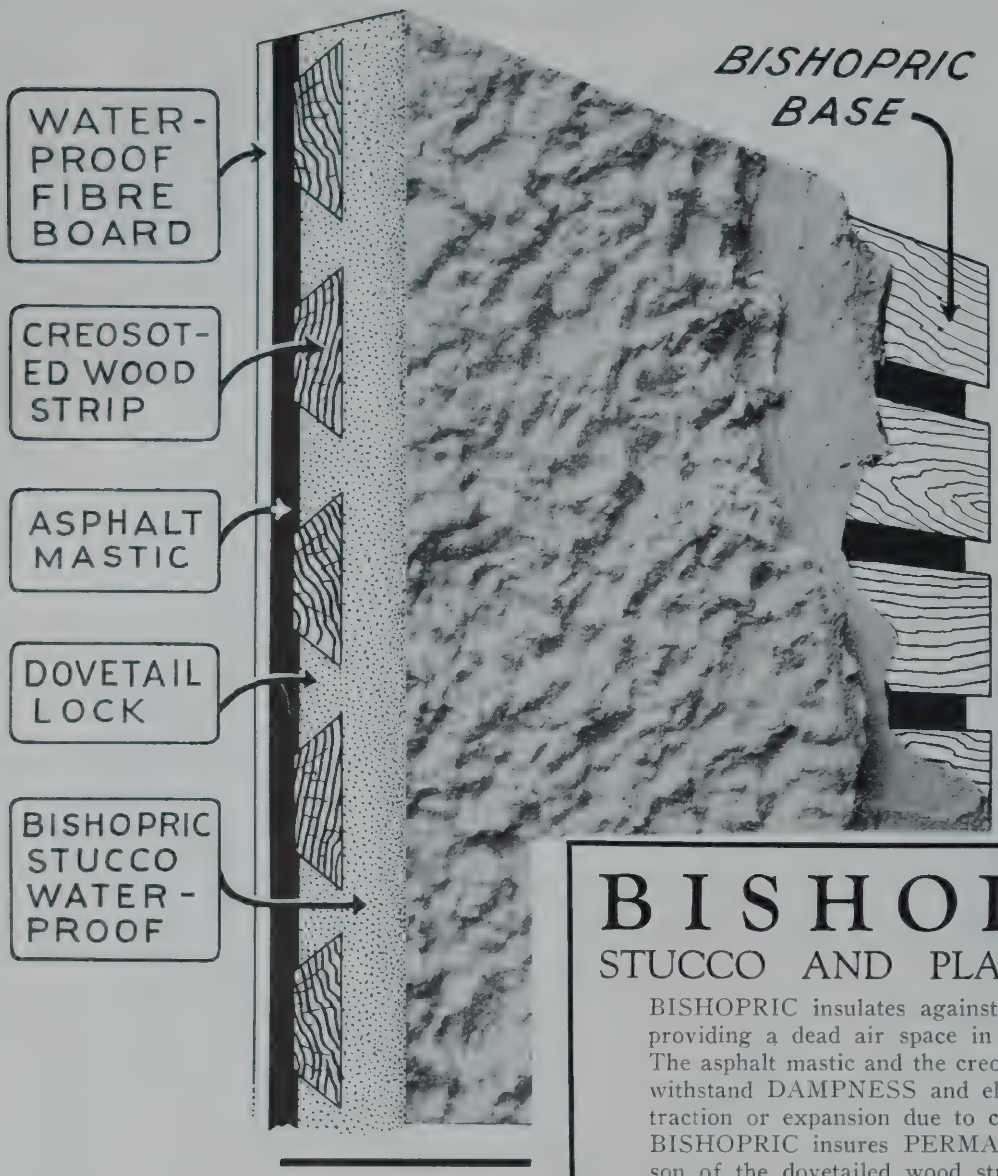

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THE EDITOR'S FORUM

GIBBON'S CARVINGS AT ST. PAUL'S

REPAIRS now in progress at St. Paul's Cathedral have involved the taking apart of the organ case, and according to *The Times*, the matchless carving by Grinling Gibbon is now to be seen at close range for the first time since 1870, when the organ, which was originally placed upon the screen between nave and choir and later was set within the central arch of the choir upon the north side, was divided and placed in its familiar position.

"To all appearances, the wood is in perfect preservation, the carving of the Corinthian capitals being as sharp and clear as when it was done. For the body of the casing and the figures of cherubs and angels oak was used, the swags of fruit and foliage for which Gibbon was specially famed being in limewood, which cuts easily in any direction. Gibbon's original idea seems to have been to make manifest the music proceeding from the organ; most, if not all, of his angels have stayed their trumpets to listen, his cherubs are moving and smiling, and fruit and foliage complete the festival feeling. Inset in the panels which screen the organ chamber there are grilles of gilded metal, and these are probably the work of Tijou, another of Wren's famous craftsmen, from whose designs the choir gates were made of the last iron obtained from the Sussex iron fields."

PASSING OF ADELPHI TERRACE

THAT London, as well as New York, suffers from the ruthless march of progress is proved by the announcement that the Royal Adelphi Terrace, as it is named officially, one of the best known works of Robert and James Adam, is to be destroyed to make room for a new building. On "the finest sweep of the curving Thames in all London," according to *The Boston Evening Transcript*, "there is to rise one of those enormous structures that tend more and more to Americanize Europe and destroy its beauty."

PETER BONNETT WIGHT

THE Chicago Chapter of the American Institute of Architects recently passed resolutions recognizing the loss which the Chapter has sustained in the death of Peter Bonnett Wight, which occurred on September 8, 1925 at Pasadena. He had reached the advanced age of 87. "Mr. Wight, student of art and life, builder and designer, was early a Fellow and for many years a Secretary of the Institute. His contributions to professional literature were many, varied and instructive. His history of the Chicago Chapter of the A. I. A. teems with interest and will long keep his memory green in the hearts of its members, his friends to whom, as to all, he gave himself without stint and in full measure."

PUBLICATION OF DRAWINGS

A NUMBER of English architects are interested in a movement to secure the publication of some of the rarely beautiful sketches and drawings made by Mr. Raffles Davison. Many of these drawings have been exhibited in New York and during the present year in London, but it has been thought that their collection and publication in permanent form would be of value. Among those identified with the movement are J. Alfred Gotch, President of the Royal Institute of British Architects, E. Guy Dawber, Sir Reginald Blomfield, Sir Aston Webb and Sir Edwin L. Lutyens, while the actual publication of the drawings is in the hands of Herbert Wigglesworth, 7 John Street, Bedford Row, London, W., to whom inquiries may be sent.

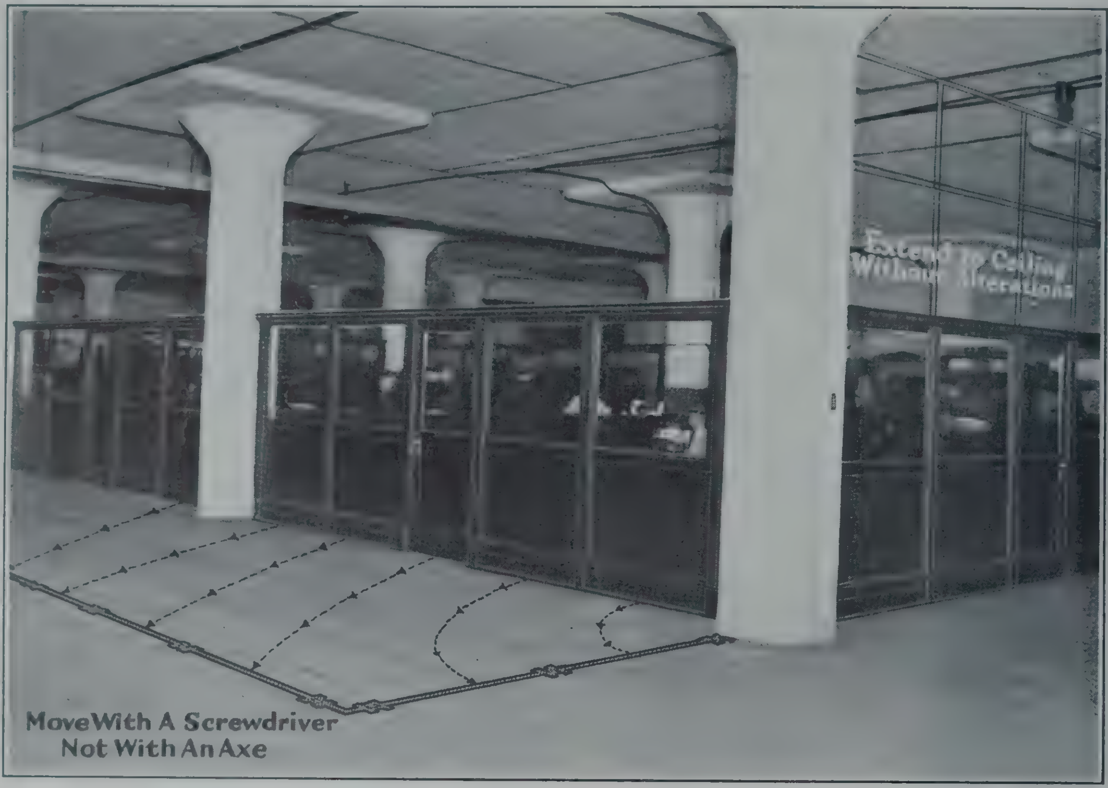
THE TOKIO EMBASSY

PLANS for the new American embassy building in Tokio, to cost $1,250,000, will be drawn by H. Van Buren Magonigle, of New York, and Antonin Raymond, an American who has practiced his profession in Japan for the last six years. Announcement of the award of the contract for the drawings and specifications of the establishment, which will house the American diplomatic and consular representatives in Japan, was made by Secretary Kellogg. An appropriation for the structure to replace that destroyed by the Japanese earthquake was authorized by the last Congress, which was lately adjourned.

Mr. Magonigle, who will visit the site selected for the buildings before final decision on the plans and specifications is reached, is a Fellow of the American Institute of Architects. He designed the McKinley National Memorial at Canton, O.; the National Maine Monument, New York; Liberty Memorial, Kansas City; and many private residences, clubs, schools and other buildings. He is a past president of the Association of Alumni of the American Academy at Rome and of the Architectural League of New York, a member of the American Federation of Art, and of the Society of Beaux Arts Architects.

THE ROOSEVELT MEMORIAL

JOHN RUSSELL POPE, of New York, has won the competition for the design for the Roosevelt Memorial to be erected in Washington. Announcement to that effect was made recently by James R. Garfield of Cleveland, President of the Roosevelt Memorial Association, after a meeting of the Association's Executive Committee at the Corcoran Gallery of Art. Mr. Pope's design was chosen by the Jury of Award, consisting of Paul Cret, Herbert Adams and Louis Ayres The Association has appropriated $1,000,000 for erecting this Memorial.



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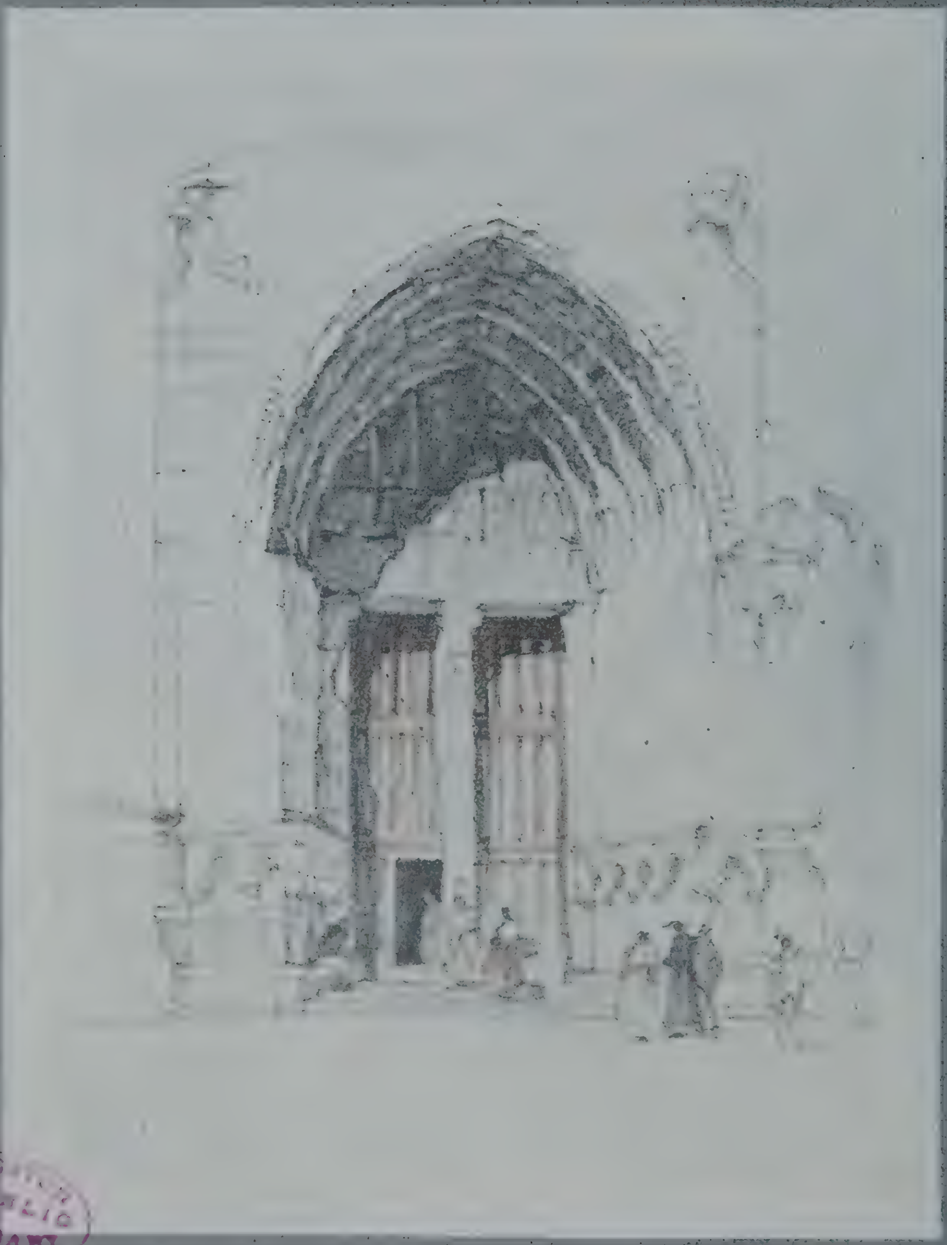

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NORTH DOOR, CATHEDRAL OF ST. CYR, NEVERS, FRANCE

FROM A DRAWING BY LOUIS C. ROSENBERG

The
ARCHITECTURAL
FORUM

Volume XLIII NOVEMBER 1925 Number 5

Temple Tifereth Israel, Cleveland

CHARLES R. GRECO, Architect

By RICHARD R. STANWOOD

THE last few years have been notable for the great increase in the number and sizes of the new synagogues which have been erected in larger cities all over the country. Among the largest and most costly of these is the new temple of the Tifereth Israel Congregation of Cleveland, having a seating capacity of 2,000, and completed a few months ago at a cost of approximately a million, two hundred and fifty thousand dollars.

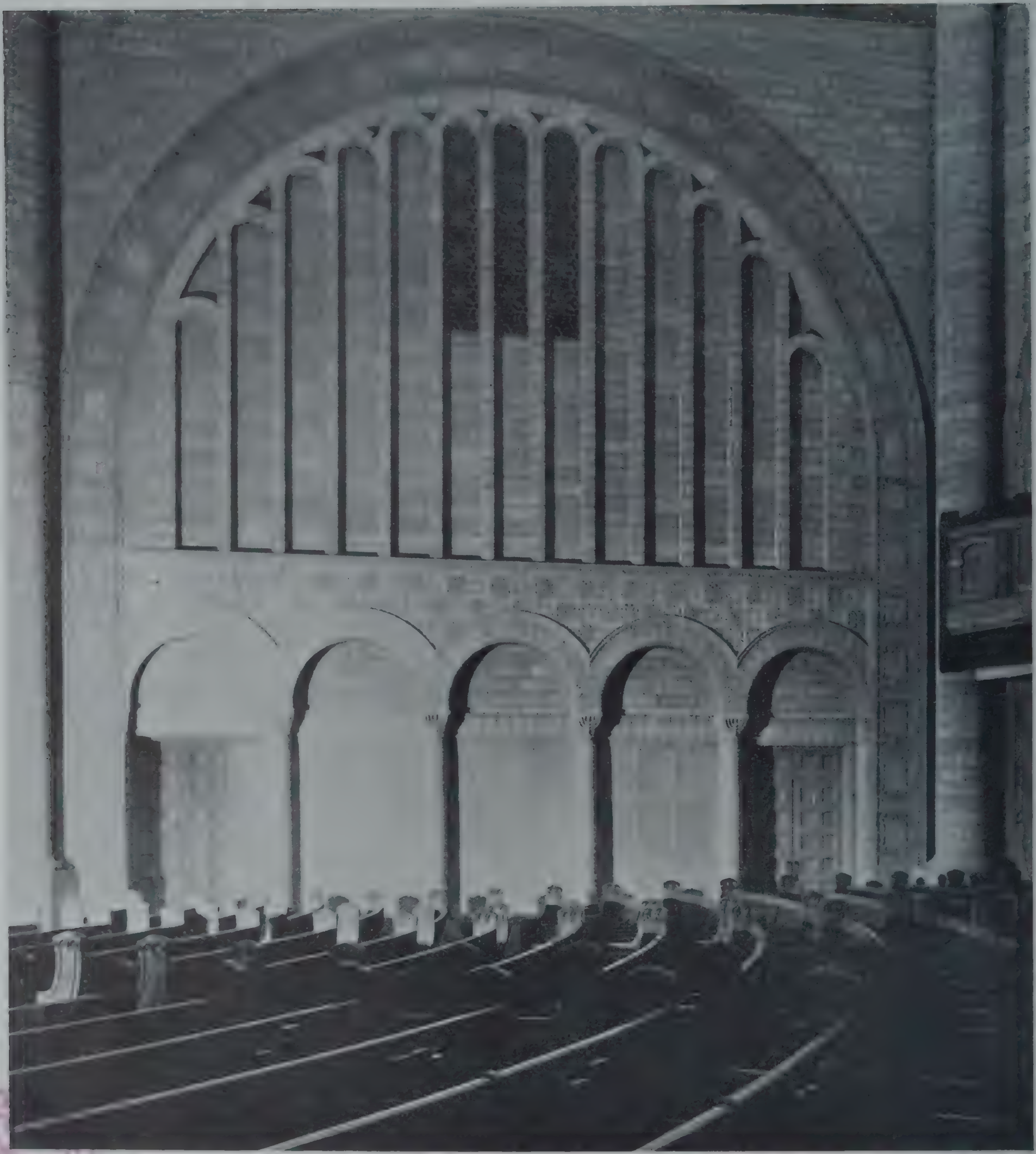
In order to understand the planning of this building it is essential to know the peculiarities of its site. The plot chosen for the new temple, on East 105th Street, where it flanks the beautiful Wade Park, in which is the new Art Museum, while offering a prominent and imposing site for a lofty religious edifice, presented also some very unusual problems on account of its shape and topography. Situated in the acute angle (less than 24°) at the junction of 105th Street and Ansel Road, with a frontage of about 550 feet on the former and about 600 feet on the latter, the greatest width being less than 250 feet at the north property line, the difficulty was further complicated by the fact that at the northerly end East 105th Street is fully 20 feet below the grade of Ansel Road. These conditions proved to have far more influence on the ultimate arrangement of the building than is the case with the normal rectangular city lot.

As the activities to be carried on in a building of this type divide into three phases, the religious, the educational and the social, so the plan of the building is divided into three main groups: the temple itself, occupying approximately the center of the lot and facing south; the offices and school, facing west on Ansel Road, both for advantages of light and the quietness of the lesser street; and the gymnasium and playcourt, or social portion of the building, facing east on East 105th Street. This latter group, owing to the drop of nearly 20 feet, is at the basement level, but is still above ground on the 105th Street side, making possible architectural treatment.

These three parts are coördinated by the spacious lobby, running completely across the building from the office entrance on Ansel Road to the 105th Street front, with side connections to the temple in two places, to the school, and to the balcony of the playcourt. The playcourt is the only part of the building still held for future construction, its functions being temporarily performed by the gymnasium, which is directly connected with a large and completely equipped kitchen, for use on social occasions. The school, which is three stories high, contains 27 classrooms, and, in the basement, the heating equipment for the entire group, janitor's quarters, and a swimming pool, connecting directly both to the school above and to the gymnasium at the lower level.

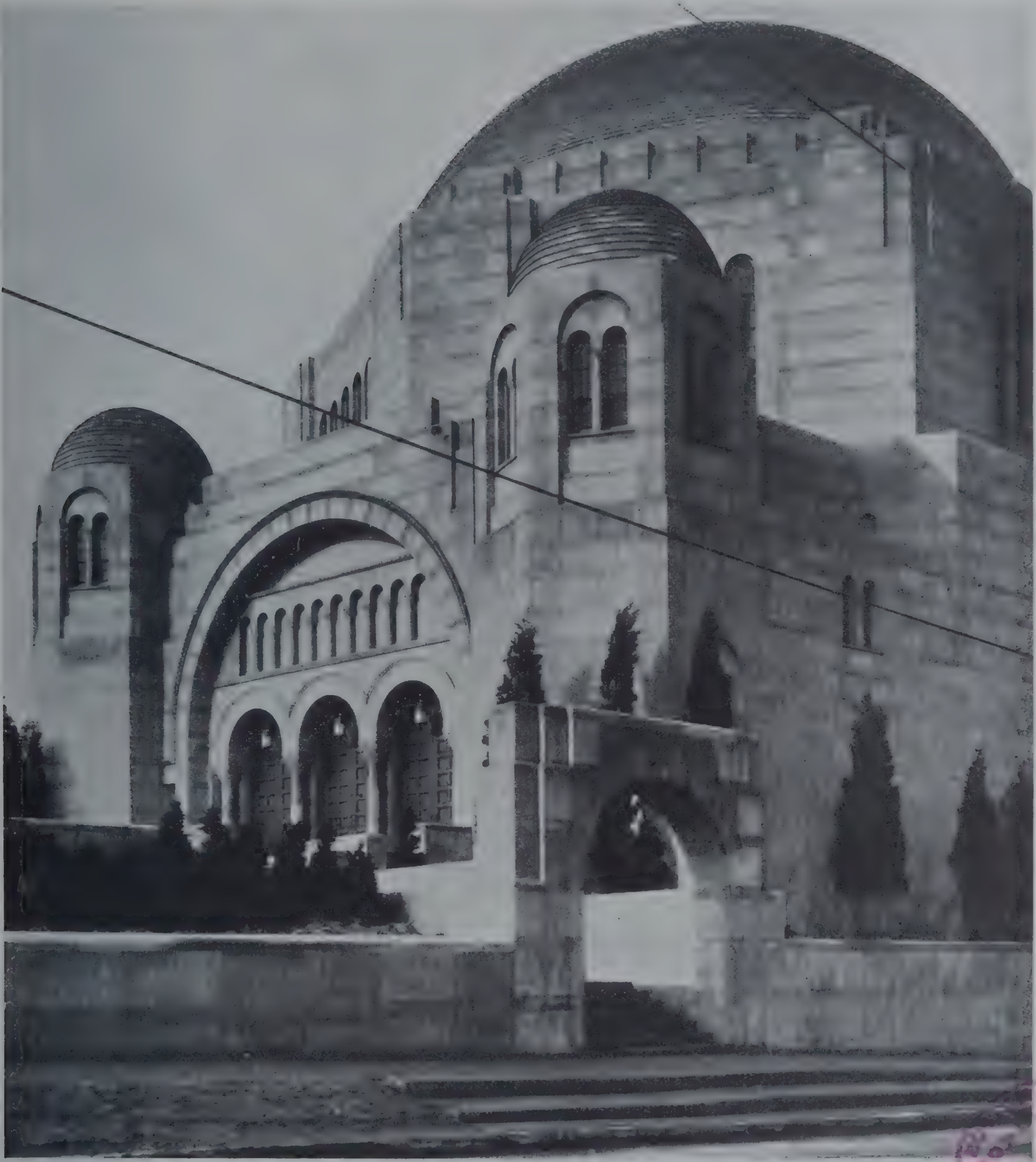
It was early decided that the form of the main temple portion should be, or approach, that of a circle, both for religious and architectural reasons, the religious reason being that it lends itself best to the seating of the congregation and expresses most definitely the idea of the Unity of God, which is one of the fundamentals of the Jewish faith; the architectural reason being that, in spite of the absence of a symmetrical or even rectangular base, the higher and more conspicuous portion of the temple would rise against the sky, symmetrical and unified no matter from which direction it happened to be seen. Working from the circular form to polygons, it was soon discovered that a heptagon, or seven-sided polygon, fitted the lot to perfection, presenting a side parallel to each street, and it was then decided to make this seven-sided polygon the keynote of the temple plan. The main entrance, facing a broad forecourt and mall extending over 200 feet to the southern apex of the plot, is flanked by two minor, seven-sided towers, carrying the planes of the upper portion down to the ground, as seen from any point.

The exterior of the temple is faced throughout with Indiana limestone laid in wide and narrow courses alternating, the wide courses having a smooth finish, while the narrow bands are tooled. With a brief period of weathering this will give a slightly banded effect similar to that of Santa Sophia and other buildings in the near East. On the entrance front this is relieved by inlays of colored marble over the entrance arches and under the windows in the flanking towers. The main dome and the two smaller domes are of special yellow-buff tile, while the roofs over the rest of the building are almost flat.



Detail, Side Wall, Temple Tifereth Israel, Cleveland

The interior of the temple, in form a heptagon 90 feet in diameter, is carried out in two tones of wall tile, every fourth course being in the deeper tone, giving a suggestion of banding as given to the exterior. Each of the seven interior faces has a great arch with a broad band of arabesque, touched with color on the faces and reveals of the voussoirs. These arches, 34 feet in diameter and 40 feet high, support a plain wall surface, with five beautiful stained glass windows of Byzantine motifs, extending up to the dome. The corner columns are unbroken shafts from floor to the spring of the dome, and are carried up in the form of semi-hexagonal ribs decorated with arabesques, all meeting in the center of the dome, 88 feet above the floor. The great arch over the Ark and choir gallery carries back in the form of a barrel ceiling treated as a grille of Byzantine design and opening on each side into the organ chambers. Under this stands the Ark, the focal point of the interior, with the arcaded choir gallery forming a harmonious screen across the back of the central arch. The Ark and screen are carried out entirely in selected walnut and are elaborately carved and inlaid, the chairs and reading desk being



Detail, Entrance Facade, Temple Tifereth Israel, Cleveland

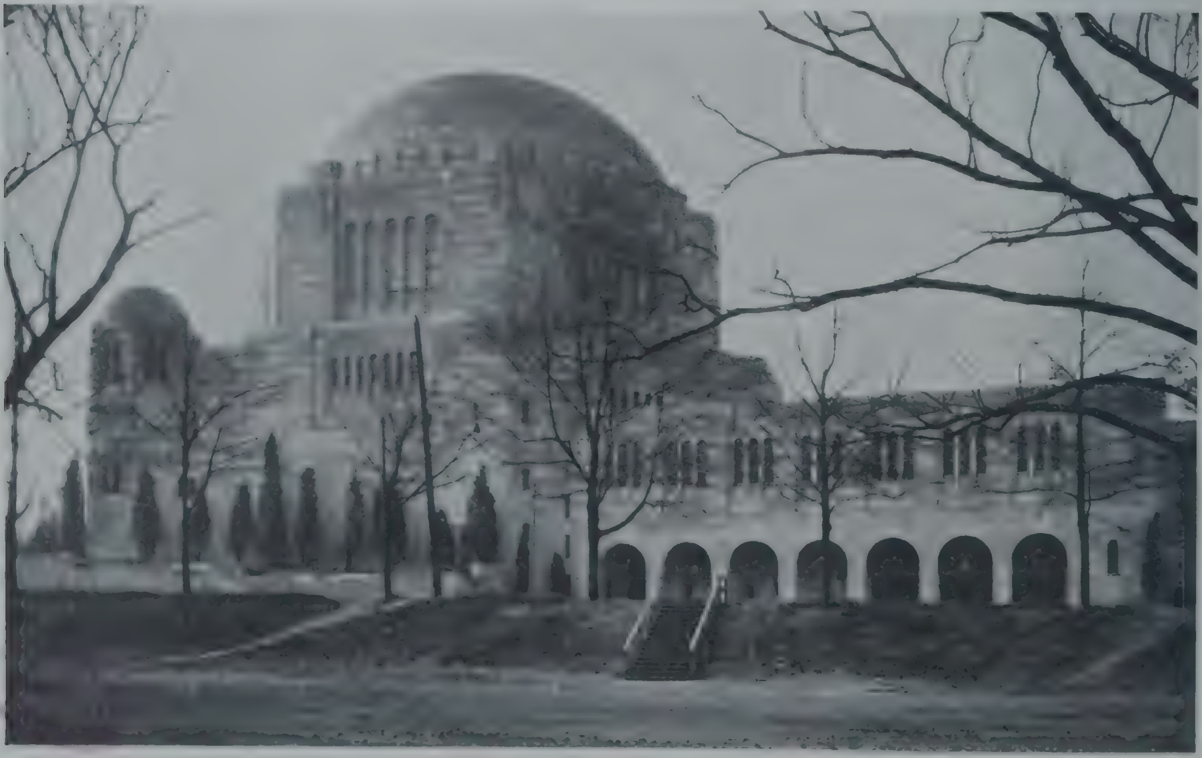
of the same materials and of special design. This treatment of the woodwork is repeated in the front of the balcony, which follows four of the seven interior faces, where three panels in each face are carved in symbolical representation of the Twelve Tribes of Israel, other panels bearing an interlaced symbol combining the shield of David with the Menorah, or seven-branched candlestick. All the carving is emphasized by a use of gold and color in the backgrounds of the symbols and arabesques.

The impression of color, both in material and in lighting, is particularly emphasized in the broad entrance vestibule, from each end of which the main stairways lead to the balcony. The floor is of alternating equilateral triangular blocks of pink and gray Tennessee marble, with a large bronze insert in the center, showing the interlaced pattern of the shield of David, the seven-branched candlestick, and the ring or circle, in low relief. The walls are also of marble from floor to ceiling, in wide and narrow bands, the wide bands being of especially selected gray marble of deep tones with broad splashes and veins of ox-blood red, of very striking effect, the same marble of which the four exterior columns at the entrance are made. The narrow bands are of rare imported marble. The ceiling is of modeled plaster in a design of hexagonal basis, the lines thus paralleling the 60° angles of the floor designs, and treated in bronze and dull gold. The whole effect of color is heightened by the lighting, all the light coming through three glass traceried hexagons, set flush in the ceiling, the bulbs above being treated with gold. The result is a red-gold glow of color, of such richness that the air itself seems almost to be colored.

Passing from this brilliance of color into the more somber tones and great height and breadth of the temple auditorium, the feeling of reverence is enhanced by the unusual softness and mellowness of the lighting. Except for small fixtures under the balcony and in the recesses of the great arches above it, all the lighting is indirect and very effective. In the upper part of each of the seven faces is a row of five deeply recessed stained glass windows, with splayed jambs and sills. In the splay of each sill, under amber glass, is a concealed floodlight aimed upward toward the domed ceiling, while outside the stained glass windows, in the space between the inner and outer walls, are other strong white lights shining through the colored windows. The result is a glowing effect of subdued daylight, through stained glass, as in the mediæval cathedrals, and practically the same at night as in actual daylight, which, with the soft, warm, rose-buff tones of the wall surfaces, greatly heightens the feeling of religious significance.

The question of acoustics was studied very carefully, both from the point of excluding sounds from outside and avoiding echoes and reverberation within. To achieve as nearly perfect stillness as possible, in regard to external sounds, in a building located as this on a main traffic artery, the whole of the drum of the dome, as well as the dome itself, is a double shell. The only points where the interior and exterior walls are one are those on the two sides parallel to the two streets, for a short space at the back of the balcony, but the wall here is also furred doubly, and seven small windows have also two sashes each. The interior received very careful study to eliminate all echo from the standpoint of the speaker, without at the same time smothering the resonance and tone of the organ, which are equally necessary to the best effect. It was a great satisfaction to all concerned, when the completed building was put to the test of actual use, to find that the result had fully justified all the effort put into this important detail.

The architect and the committee felt from the beginning that the architectural treatment of the new building should not be based on any of the usual styles, but should rather be developed from the basic forms of those regions where the Jewish race passed the period of its national existence, taking only such motifs from various sources as could be welded into a harmonious entity. The outcome has been a type which is, perhaps, more Byzantine than anything else, but which is still not too oriental in feeling to prevent a transition without undue shock from the mass of the temple to the more modern and practical regularity of the school and other everyday portions of the group of buildings. It is felt that in solving the problem in this way there has been achieved a building which is not only architecturally satisfying, but which expresses in itself the deeply religious spirit and the essential unity of the Jewish faith.



General View, Temple Tifereth Israel, Cleveland
Charles R. Greco, Architect

Competition for the Design of the First Baptist Church, Plainfield, N. J.

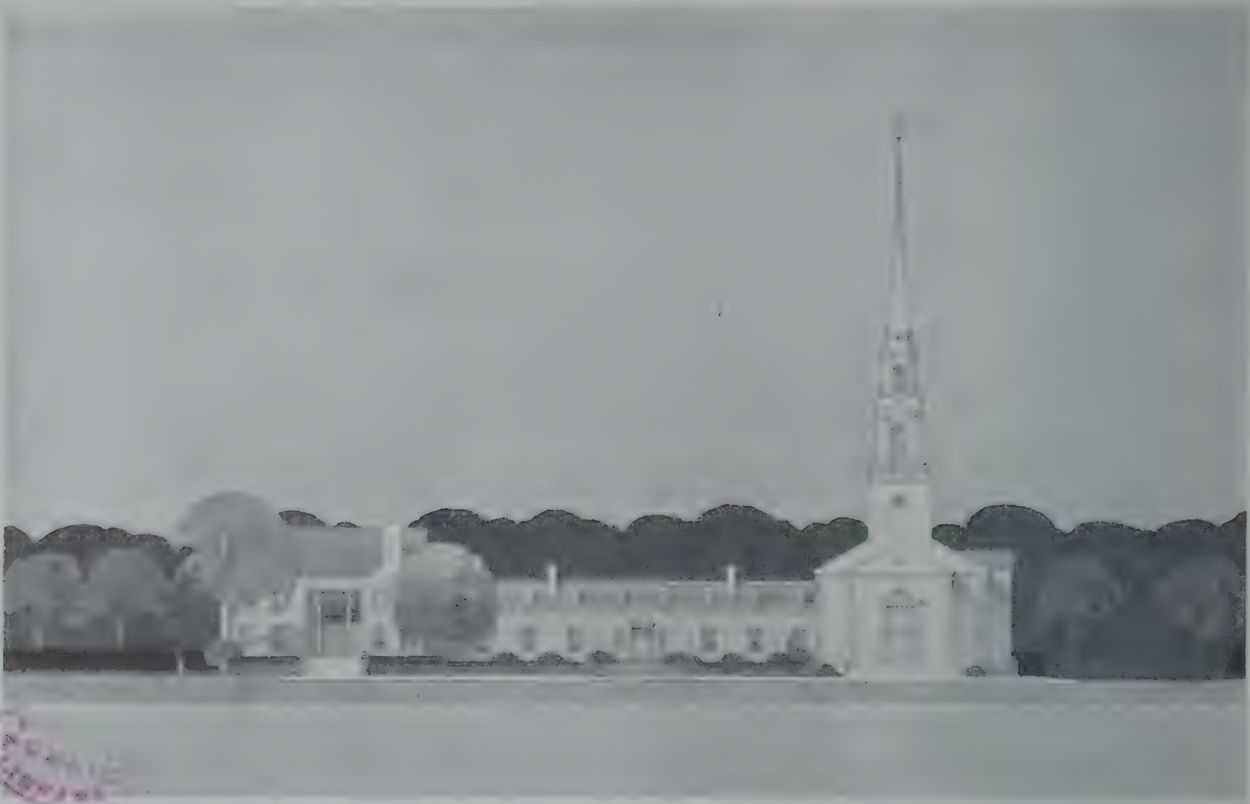
IN preparing the designs to be submitted in the competition lately held for the First Baptist Church at Plainfield, N. J., the competing architects faced a somewhat complex problem. On the site there stood already a residence of somewhat ample size which it was desired to retain, and adjacent to which it was desired to erect a church and a building suitable for the use of a growing congregation, together with the assembly rooms, classrooms, parlors, offices and all the other adjuncts necessary for accommodating the activities of what has come to be known as "social service," an increasingly important part of the present-day activities of many churches. Added to this there was the requirement, dictated by good taste, that the buildings be of a type or character in keeping with the traditions of an attractive old town of considerable historic interest, and still containing many relics of the period of the Revolution. It was desired to give the group of buildings the appearance of structures such as might have been erected toward the end of the eighteenth century in a prosperous town near the Atlantic seaboard, and to remodel the old residence already standing upon the grounds to conform to the architectural character of the group as a whole.

There are presented here the drawings and plans of the winning design, submitted by Hobart B. Upjohn, and of one of the other entries, from the office of Electus D. Litchfield and Pliny Rogers. In both these instances the architects have adapted the designs widely used during the late colonial era and the early federal period for ecclesiastical buildings in the northern colonies or states,—a slightly simplified form of the ecclesiastical architecture which was prevailing in England at the time, involving use of late English Renaissance forms, the most striking details of which were spires or steeples, such as had been made popular by such architects as James Gibbs and Sir Christopher Wren, and still to be seen on countless churches still in use in England.

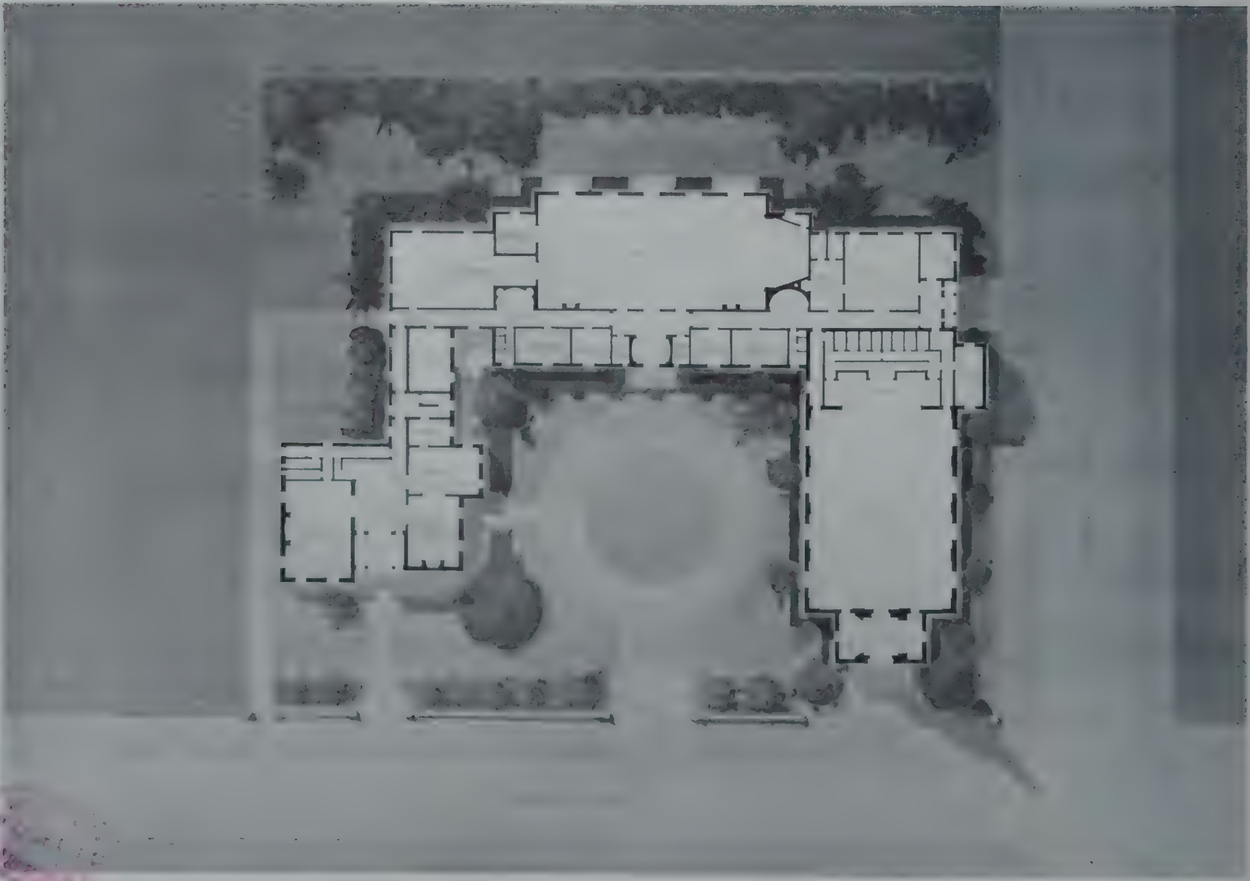
In each of these designs the church proper forms (as it should) the dominating factor in the group,—a correct and dignified (even if slightly severe) meeting house, much similar to many which still face village greens or commons in old New England towns, the church in each instance having a graceful spire pointing skyward. In each case, again, the design calls for the placing of the church at some distance from the residence already existing, there being designed between and connecting the two another new structure planned to contain various offices for administrative purposes, a "Fellowship Hall," a study for the pastor, and rooms for his secretary.

Either of these designs would provide a group of structures such as would constitute a valuable architectural acquisition to any large village or town. The designs call for groups of buildings well related or coördinated. In both instances the main entrance to the church is through a spacious vestibule or narthex, the nave or "auditorium" as it is called in the plans being of the traditional oblong meeting house type amply lighted by round-topped windows in the side walls. Here custom required the placing of the organ and the singers at the east or pulpit end of the auditorium. The plans provide rooms in the church for the pastor, his assistant, and for the members of the choir. Both plans have in common the devotion of the larger part of the new structure which connects the church with the older residence to the "Fellowship Hall" which, next to the church auditorium itself, has the largest floor area in the group. The functions of this hall require not only a separate entrance, directly from outside, but also a small stage and the connecting rooms and the coatrooms and kitchen which use of the hall for a wide variety of social activities would naturally require. The importance of the Sunday School department in this church is indicated by the ample provision for its use of many classrooms intended for primary, junior and senior scholars, these rooms being placed sufficiently near the Fellowship Hall to make possible the assembling of the entire Sunday School in this large area. The architects' plans in both these instances call for the skillful remodeling of the old residence, already described as being on this site, into a practical parish house, occupying, as it is planned that it should, one end of the long group of buildings. It is intended, however, that the house should preserve intact its residential character; it therefore has its own entrance from the street, the doorway opening into a wide hall with rooms, in regular residence fashion, at each side. From this front hall the stairway leads to the floor above, while just beyond as one enters the parish house there begins the passage or connecting hall which leads back to the structure, already described, which connects the parish house with the church proper.

In its report, signed by Harvey Wiley Corbett as Chairman, and by Grosvenor Atterbury as Secretary, the Jury makes some interesting observations on the designs and plans which might be said to apply to competitions in general: "While obviously all of the designs are subject to further criticism, it is equally obvious that they are subject to improvement by study which would eliminate, in the opinion of the Jury, any of the unsatisfactory elements now shown therein. Obviously, too, the selection of the design to recommend for acceptance and execution, involves a weighing of virtues and defects, one against the other, and it is after very careful consideration of those involved in the present instance that the Jury recommends the ranking of the designs submitted."



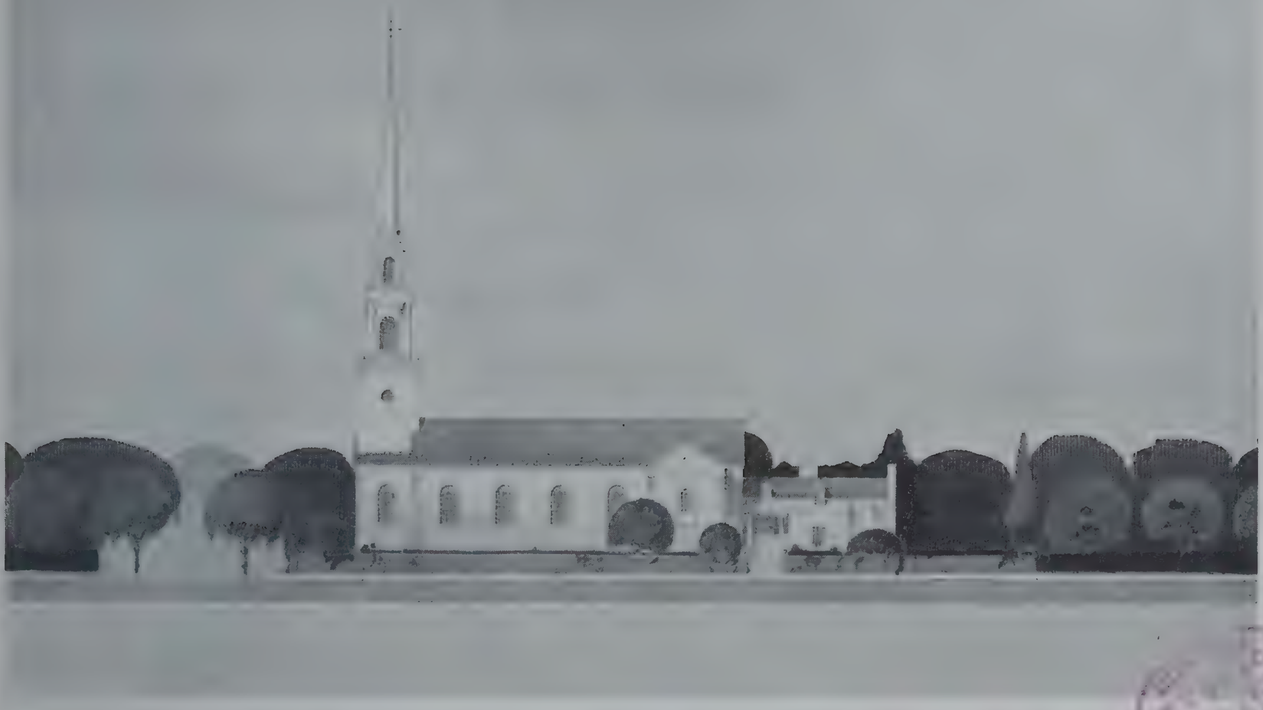
FRONT ELEVATION



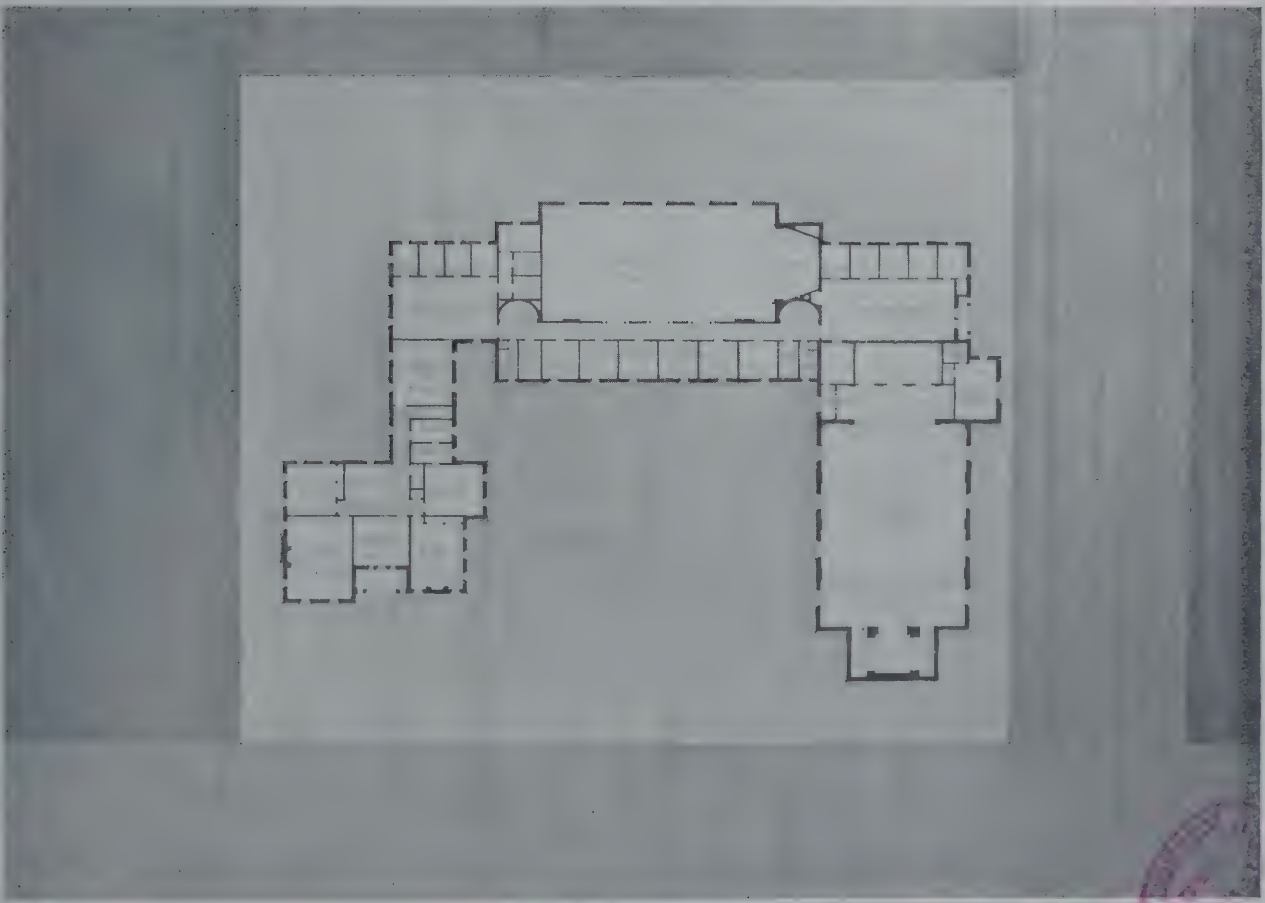
GROUND FLOOR PLAN, PRIZE DESIGN

COMPETITION DRAWING FOR THE FIRST BAPTIST CHURCH, PLAINFIELD, N. J.

HOBART B. UPJOHN, ARCHITECT



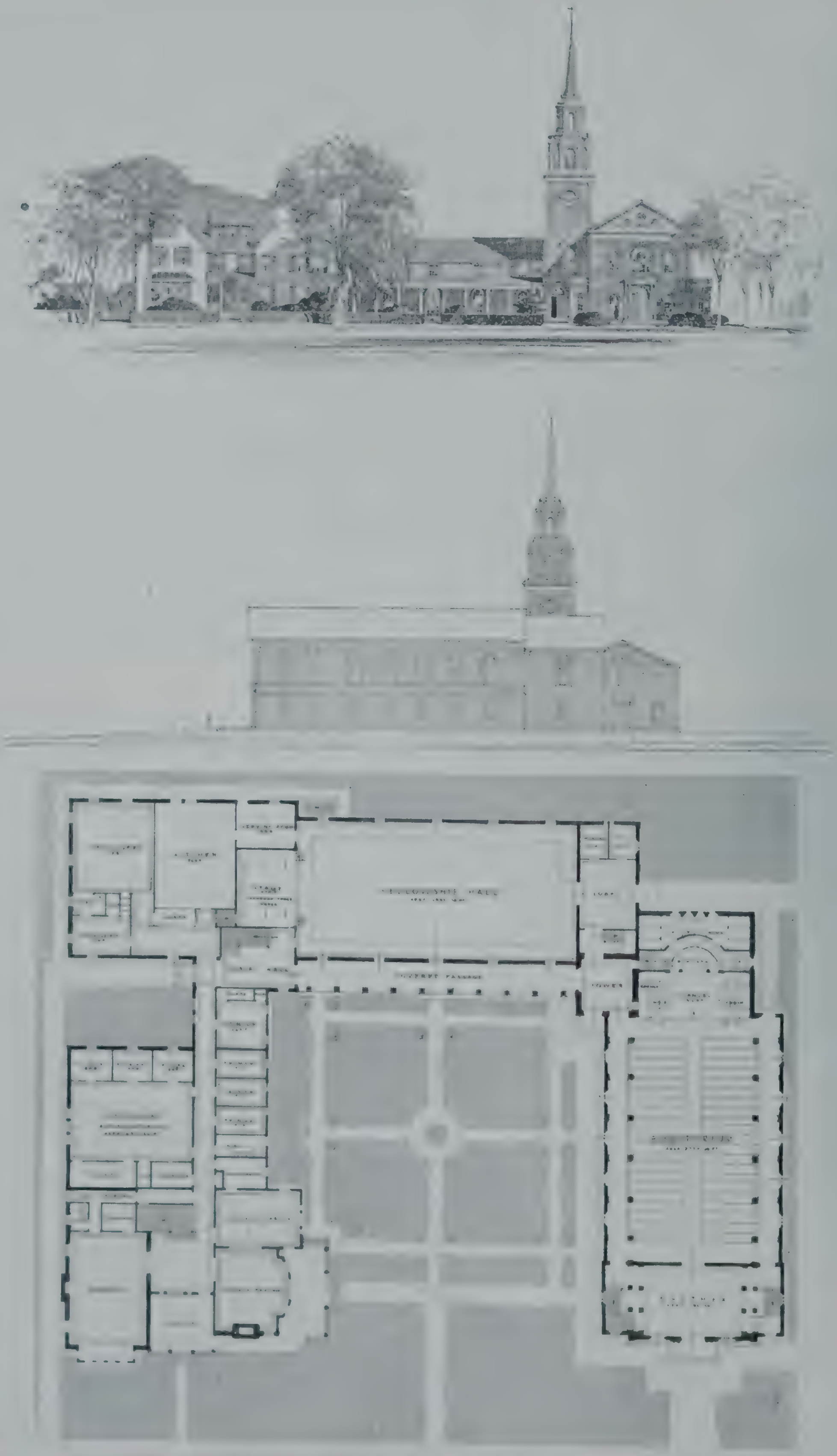
SIDE ELEVATION OF CHURCH



SECOND FLOOR PLAN, PRIZE DESIGN

COMPETITION DRAWING FOR THE FIRST BAPTIST CHURCH, PLAINFIELD, N. J.

HOBART B. UPJOHN, ARCHITECT



DESIGN FOR THE FIRST BAPTIST CHURCH, PLAINFIELD, N. J.
ELECTUS D. LITCHFIELD AND PLINY ROGERS, ARCHITECTS

Banks and Bank Buildings; Part II

By ALFRED HOPKINS

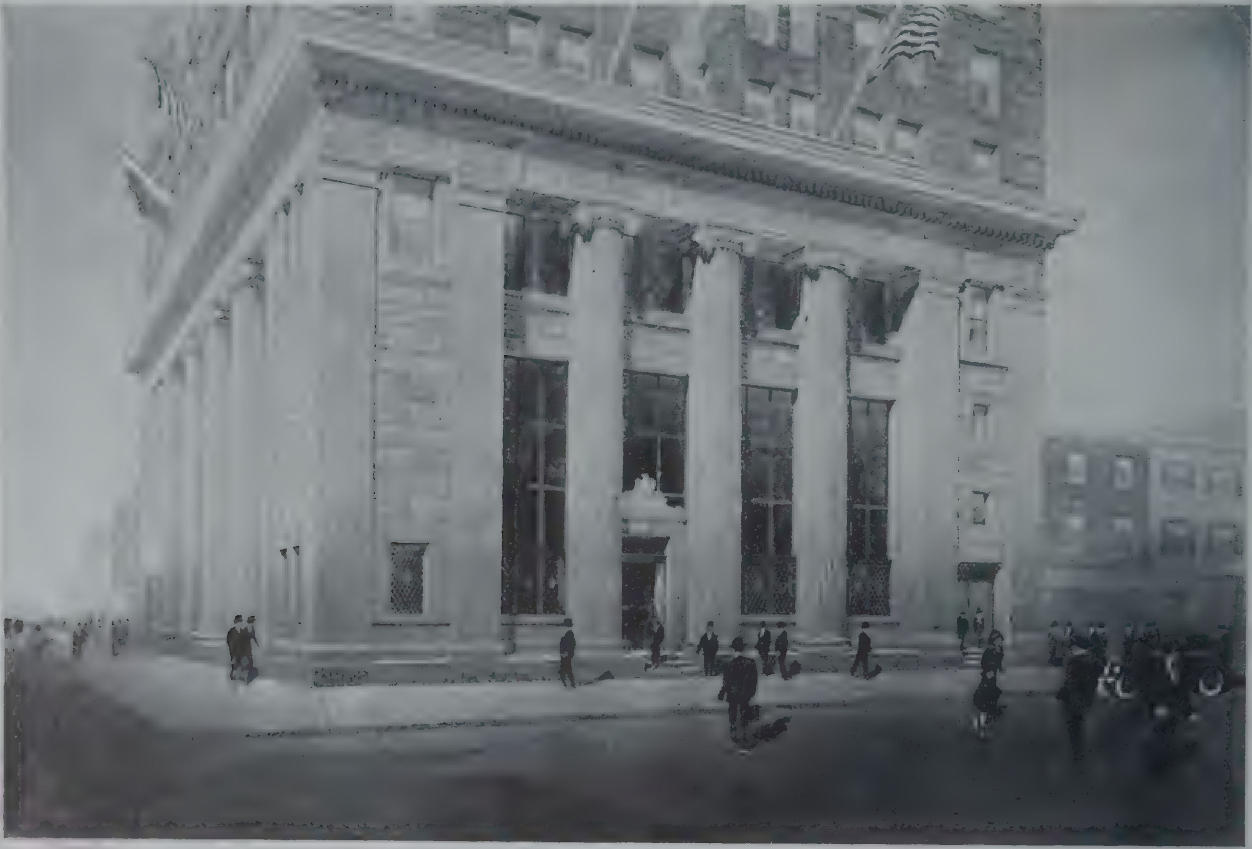
THE success of a bank's building depends fully as much on the completeness of its equipment as upon its architectural and structural arrangement; in fact equipment might almost be said to count for more, since sometimes a poorly planned building has been made serviceable and practical by installing proper accessories. Now that the general requirements of the average bank have been set forth, it will be interesting to consider briefly the details of the equipment. This is a matter frequently left to chance or to the ingenuity of some manufacturing company. It should not be. The details of the bank are most important, for it is the little things which make for comfort, and particularly in a bank.

The first principle of good and orderly banking is to keep all money out of sight. In the smaller banks it has sometimes been the custom (and a bad custom) to allow money to be piled up on the counters. This is simply an invitation for a holdup. Even the country grocer keeps his money out of sight in his cash register, and there is no reason why the banker should not conduct his business in as orderly a way. If the receiving teller is taking in money faster than he can put it away in his drawer,—and experienced tellers dispute the possibility of this,—an extended marble shelf can be provided so that this money may be concealed under it until a time comes when it can be put away properly in the drawer. This projecting marble shelf answers two purposes,—it keeps the money out of sight, and it forms complete protection at the window, which is very desirable. It does away with the necessity of having the protecting side partitions, sometimes placed at the windows, which are always awkward.

The typical teller's cage is fitted up with long counters across the front, and any additional counters required should be in the rear. The old fashioned way of having counters down the sides is all wrong. These were developed on the theory that the teller never had his back to the customer,—a good enough theory, but such counters take up too much space. What is wanted in the teller's cage is accessibility to the public. With counters across the front only, it is possible on peak days to put two tellers in a cage. With counters down the side this cannot be done without increasing the width of the cage. A counter at the rear is just as convenient as at the side provided the depth of the cage is not too great, and it should not be more than 3 feet, 6 inches or 4 feet, but in double cages the distance between front and rear counters should always be sufficient to permit two tellers to pass each other, and never less than 4 feet between front and rear. The front counter is best equipped with two "pedestals," or tiers of drawers, one on each side, each containing four drawers, the two upper drawers under separate locks, and each three lower drawers under stack locks so that all these lower drawers can be locked together. These drawers remain locked at all times and hold the surplus money,—money that is taken in or money in reserve to be paid out. Between the pedestals are adjustable pigeon holes for bank checks, deposit tickets and other necessary printed matter. A stamp drawer next to these is convenient, and speaking of drawers, it is highly important to have them all of one standard unit of size. Astonishing economy can be effected in the cost of manufacturing by using standard sizes. Ordinarily to make one drawer might cost $20. If 100 drawers are made the same size, it would be possible to make them for something like $4 apiece; so standard sizes are desirable from every point of view. The idea of standardizing sizes is important throughout the whole equipment.

A very serviceable and practical feature of the screen is the emergency wicket. This is a small door in the bottom of the screen, available for an extra teller on peak days. It makes it possible to double the service in all the cages. The lighting of the cages is important, and the usual long trough light at the top of the screen is out of date. It is unpleasant for the teller, besides being unnecessarily expensive in first cost and in operation. A double light in the right place with a light shield is the thing, and with this is combined the sign giving the nature of the cage—"Paying," "Receiving," etc. It is also possible to have the numbers of the cages illuminated. An illuminated sign over the wicket gives the teller's name on one side, and on the other it reads: "Closed. Go to the next window." All these signs are interchangeable, and may be put in one wicket as well as another, this being convenient.

The savings department, as has already been said, is best separated from the commercial part of the bank as much as it can be. The old way was to have the ledger cards in cases in the center or back of the cage. It is more convenient to have these in the front counters, where the teller will always be facing his customer. The counter top may be arranged to fold up, either at the side or at the back, and a wide deal plate always leaves sufficient space to work on. Additional area of course must be had in the rear of the cage, where there are placed the index cards and records of inactive accounts. The same arrangement is desirable for Christmas clubs, school savings accounts and the like. Statements are best filed in the front counters in the same way, and space may be saved by filing them vertically in document files rather than flat. The statement cage is usually a good place to install the pneumatic tube station. The teller's signature cards are well kept in movable cases on the rear counters, available for use in ad-



This Shows How, in the Office Building, Importance of the Bank's Quarters May Be Emphasized

Akron Savings & Loan Co., Akron
Detail of Main Entrance

joining cages. The revolving signature case takes up too much space and is difficult to clean. Non-communication between cages is important, and to carry this idea to its ultimate end the telephone may be placed in a revolving cylinder between cages, which makes it available for each, but effectually closes off the next cage at the same time. Tellers' balances may be kept in the vault, each teller having his own compartment, or else each teller may have his own compartment in a bus and keep his money there, the bus being taken to the vault when the tellers' balances have all been completed. Busses are frequently made too large and too heavy, and when this is the case the tellers generally prefer to take their balances to the vault to wheeling the bus. Busses are most useful when the bank's vault is in the basement, and the architect must be sure that the elevator is large enough to contain the busses and the attendant. There is less need of them when the vault is on the first floor.

The safe deposit department should have the same arrangements for expansion as the main floor. Space for additional safe deposit boxes should be provided in the vault, which should be either 8 or 16 feet in width; 18-inch reinforced concrete walls with ½-inch steel lining and a 10-inch door meet the specifications of the insurance companies for the minimum rate of insurance. The round door is always effective advertising, but it looks better in the basement where it does not conflict with the architectural treatment of the large banking room.

Preliminary Design for a Savings Bank
Alfred Hopkins, Architect

The public entrance to the safe deposit department should always be through two grille doors, where space permits. Between the first and the second door is the place for the identification window, and the custodian should be able to release both doors electrically. The public entrance should be the only possible entrance to the safe deposit department. This department is best cut off entirely from every other part of the building, if this does not cause too great inconvenience otherwise. Ample accommodations for coupon booths (4 by 6 feet is a minimum size) should be provided, and at least one large room for every three or four of the smaller rooms. The coupon booth should have a good light, a ventilated door, coat hooks, call bells, suitable accommodation for the necessary deposit slips, envelopes, pins, rubber bands, clips, scissors, pens and ink. Glass is an excellent material for the shelves, as it is transparent, and it is easy to see an important paper which may have fallen on the floor. Waste baskets are not desirable. Telephone outlets are usually provided. A great deal of ingenuity has been exercised over the lock which, with a door check, fastens the door after the customer has left the booth, and the door must be opened by the attendant. This is not necessary for the average safe deposit department, which can be readily supervised by the attendant in charge. It is always desirable, however, to plan the department so that it can be completely supervised from the identification window. One of the important things to think of in the safe deposit department is to furnish it properly and to keep it as much as possible from resembling a mortuary chapel, which it is often only too likely to do.

Workroom. The first requisites of the workroom should be light, ventilation and adequate area. All are vitally necessary, and one rarely finds a workroom which will qualify under this simple specification. Neither adequate lighting nor ventilation can be had without windows on opposite sides, although

Akron Savings & Loan Co., Akron
Public officers' space showing private offices. Glass partitions are always effective, as they obstruct no light

The Akron Savings & Loan Co., Akron
The tower is a detail of modern commercial work which has great possibilities as an advertising feature, especially at night when it can be illuminated

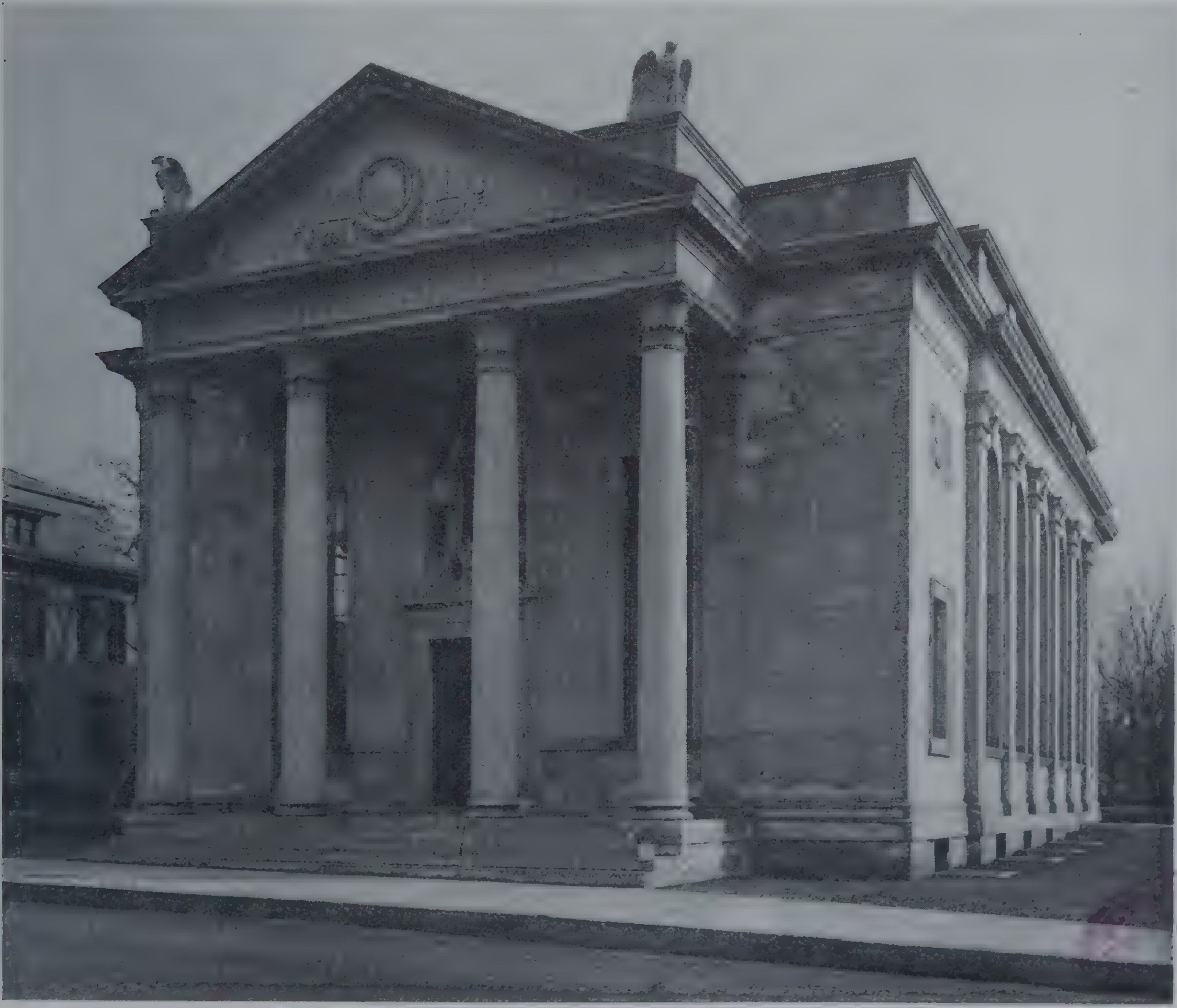
The Commercial Trust Co., New Britain, Conn.
Where the bank builds an office building, it is desirable to emphasize the importance of the bank's quarters. This emphasis is evident in this design

there are inadequate substitutes for both of these. The workroom should be acoustically deadened throughout, which makes a machine room unnecessary. For supervision all fixtures should be of only counter height, and if any partitions are required they are better of glass. All windows are best 48 inches above the floor. High windows distribute the light better, and leave wall space below for filing cabinets and work tables. No bank ever had enough space for files. It is usually convenient to arrange the bookkeeping department in units of two bookkeepers each, who have all necessary accommodations for filing, checks, deposit tickets, ledger sheets, signature cards, etc. within immediate reach. Sorting tables with slanting compartments on the top are better than the old pigeon hole system. Care must be taken to have these carefully soldered so that no items can slip through the joints and be lost, which sometimes happens. The workrooms cannot have too many electrical base and floor outlets, since changes in the location of machines, lights, etc., are always being made. The duplex outlets are always preferable. All equipment in the workroom should follow out standard practice in sizes, so that changes and substitutions may be readily made. If the telephone switchboard can be placed to afford a view of the interior of the banking room, it is a convenience.

In the main banking room there should be a complete annunciator system, every teller and officer having his own bell which registers on an annunciator where the floor man can readily see it. The auto call is coming into general use, and is liked. Another variation of this idea is a lighting signal, which has the advantage of being noiseless. Intercommunicating telephones or the dictograph are indispensable, but the telautograph is not generally useful in the smaller bank. The pneumatic tube will do everything which the telautograph will do, and it provides a physical communication besides.

Telephones. The telephone system is important in the equipment of the bank. There are three divisions of the subject,—the public telephone, the dictograph, and the automatic intercommunicating telephone. The public telephone service is satisfactory within certain limits. It is possible to install a service with a limited number of outlets, all of which are intercommunicating and all of which are public telephones as well. Where the number of stations is not over a dozen, this is entirely satisfactory. Such installations as the dictograph are excellent where the offices are quiet. In buildings where most of the offices are private this is an excellent arrangement, but in a busy banking room there is likely to be so much noise, which the instrument of course picks up, that is is sometimes difficult to hear. The automatic intercommunicating service is becoming more and more useful, and it has many advantages. It is operated by a machine switching automatic central that interconnects the telephones with great rapidity and with mechanical accuracy. Some of the advantages are that the public telephone operator is relieved of all interior telephone intercommunication, and thus there is no interruption to the outside public system. The use of two telephones, one for private and one for public use, is frequently an advantage, since it is possible to seek information for the outside line over the inside line without interruption. The expense, including amortization of the first cost, maintenance, interest, etc., is about $15 per year per telephone. There are some very interesting special features for use in connection with the automatic telephone to meet special requirements.

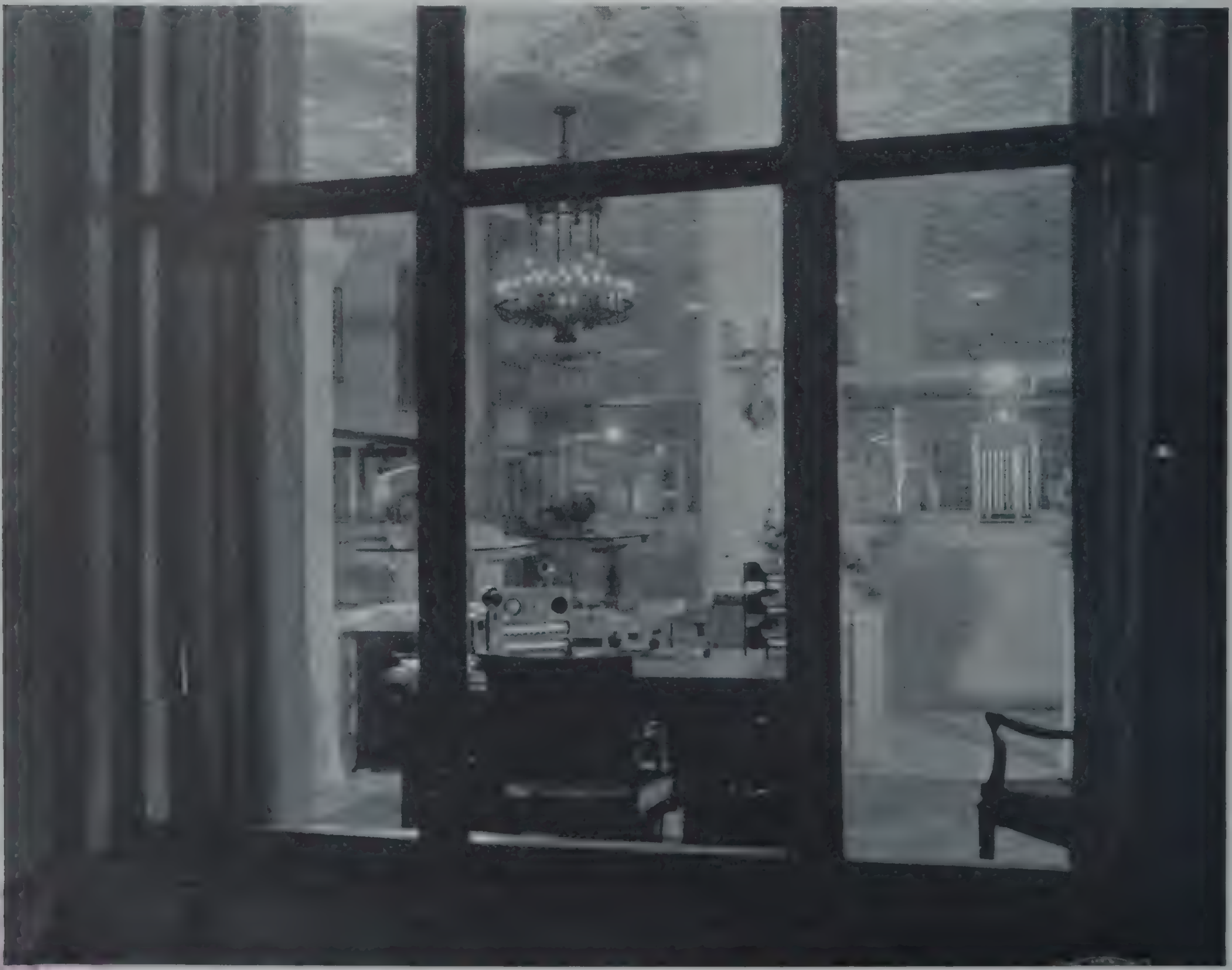
Lighting of Main Banking Room. We have discussed the general lighting of the banking room, largely from the point of view of the man in the street. The lighting of the room from the standpoint of those who work in it is highly important. It is always a simple matter to obtain light artificially, but to secure daylight everywhere on a small or interior lot is much more difficult. This is best achieved by the use of areas formed in such a way that light and ventilation may be had in the side walls for the banking room, and vault light at the bottom of the area for the space beneath. This system provides light and ventilation at the dark side of the lot without sacrificing any of the lot area. It is astonishng how much light a vault lighting of this type will give. It is not open to the objection of the ordinary skylight, which is difficult to keep clean and more difficult to keep from leaking. Vault light construction has been improved wonderfully in the last decade, and this detail of building may now be considered as perfected. Objection to it is sometimes made on account of snow. There is nothing to this, however, since the snow soon melts over the vault lights and leaves them unobstructed. If it does not, we have arranged steam pipes which will perform that service, though they are seldom used.



The Suffern National Bank, Suffern, N. Y.
Alfred Hopkins, Architect
The stone portico is always an effective feature for a country bank. This building greatly needs a little judicious planting

Cross lighting is always the best, for it makes possible cross ventilation. This is the only way to ventilate a building. It sometimes happens that such natural ventilation cannot be obtained. The next best thing is to blow air under high velocity into the unventilated portions of the room. This can be accomplished very economically, and if given proper attention it is as a rule very satisfactory.

The Office Building. A problem which the bank frequently faces is whether to build an office building or an individual banking structure. This is a matter which is much easier to decide now than formerly. Higher rents have made the office building much more profitable, and with anything like a fair demand for offices, the office building is undoubtedly the thing. The size of the property, however, should permit an available office renting area of from 4,000 to 5,000 square feet per floor. But the offices should always be secondary; the bank should never lose one iota of its prestige as the dominant factor in the proposition. When an office building is under consideration, the inclination of the board is sometimes to treat the whole thing as a real estate proposition, with the bank as one tenant among many. That point of view has produced some very sad examples of bank building. You can find any number of structures where the bank's legitimate interests have been entirely submerged and the bank, whose position is paramount, we find sacrificed to offices and stores. Banks that rent the fronts of their premises for stores always live to regret it. If you don't believe that statement, ask some banker who has gone through the experience. The bank is the thing. Its position should be primary, and everything else secondary. The idea of sacrificing the bank's entrance to the office building entrance, on the theory that the traffic to the office building will bring trade to the bank, is fallacious. Its fallacy can easily be made apparent by watching the people pass on the street and trying to realize how many more pedestrians would pass the building than would go into it, checking up the result on an actual count of an existing building. The bank wants to be in a position to make its appeal to everyone who passes it on the street,—not limiting itself to those who come to its office building. The office building entrance should usually be on the side street,—for it is never wise to build an office building anywhere but on a

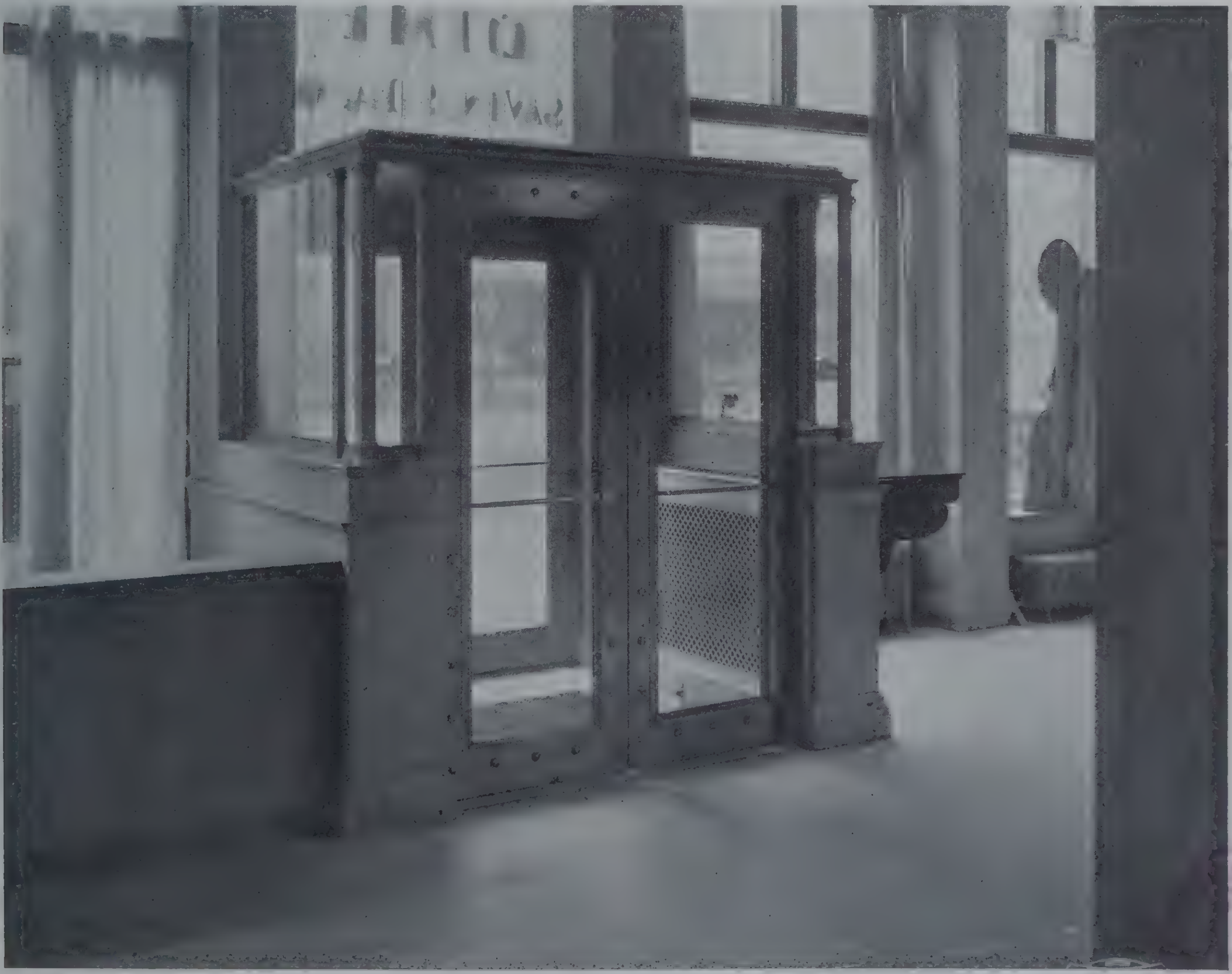


Akron Savings & Loan Co., Akron

The photograph was taken from the street to show how low windows permit a good view of the interior from without, useful since it affords to the public a glimpse of the bank's activities corner,—and the bank's windows and position should be so emphasized by its architectural treatment that the rest of the building is entirely secondary. If the office building does not accentuate the bank from every point of view, don't build it. President Coolidge once asked the country to "Have faith in Massachusetts." We would ask every banker to have faith in his institution and in his community to support it,—a faith that, in the phrase, "will move mountains." That is the point of view from which to undertake bank building, because when building has been wisely done, that faith is justified.

Given the point of view, here are a few general hints that the banker might have in mind regarding his office building. Provide adequate elevator service; a good rule of thumb is 20,000 to 25,000 square feet of rentable office area per elevator for buildings of under 12 stories. Elevator cars should be 6 feet, 6 inches wide by 5 feet, 6 inches deep,—not the space which the architect indicates in his drawings, but the actual interior of the car. A few inches less than these dimensions are not important, but ordinarily these figures may be kept. Use double doors, and have glass in them so that the operator may see out; and slant the jambs of the doors, which will give him a better chance to see who is waiting. Dials need be put in the ground floor only; up and down lights elsewhere. Give the elevator a decent speed of not less than 400 feet per minute, and don't be too much carried away with elevator sales talk on service, repairs, etc. Arrange for freight either by a separate elevator or a separate entrance in the basement to a passenger elevator. If a separate elevator is included, it is well to have this next to the general service for passenger use in an emergency. To get a profitable return on the building it should rent for not much less than $2 a square foot. The sizes of offices are important, and take your real estate man's idea of sizes in preference to your architect's. This is a real estate and not an architectural matter. For offices a 9- or 10-foot unit is best, including one window of 4-foot width and 7 feet, 6 inches high. There is generally call for small offices.

Steel columns should therefore be placed 18 to 20 feet on centers, so that all offices may be subdivided. Front offices should always be 25 feet



Entrance, The Dime Savings Bank, Akron

This type of door has an advantage over the revolving door in that it does not obstruct the view. Doors must open out, and ample radiation be provided, as may be seen at the side. Such a vestibule is effective in preventing drafts

The National Tradesmen's Bank, New Haven, Conn.

An interesting alteration, which shows how a bank interior may be effectively ornamented by a ceiling taken from casts of old English plasterwork.

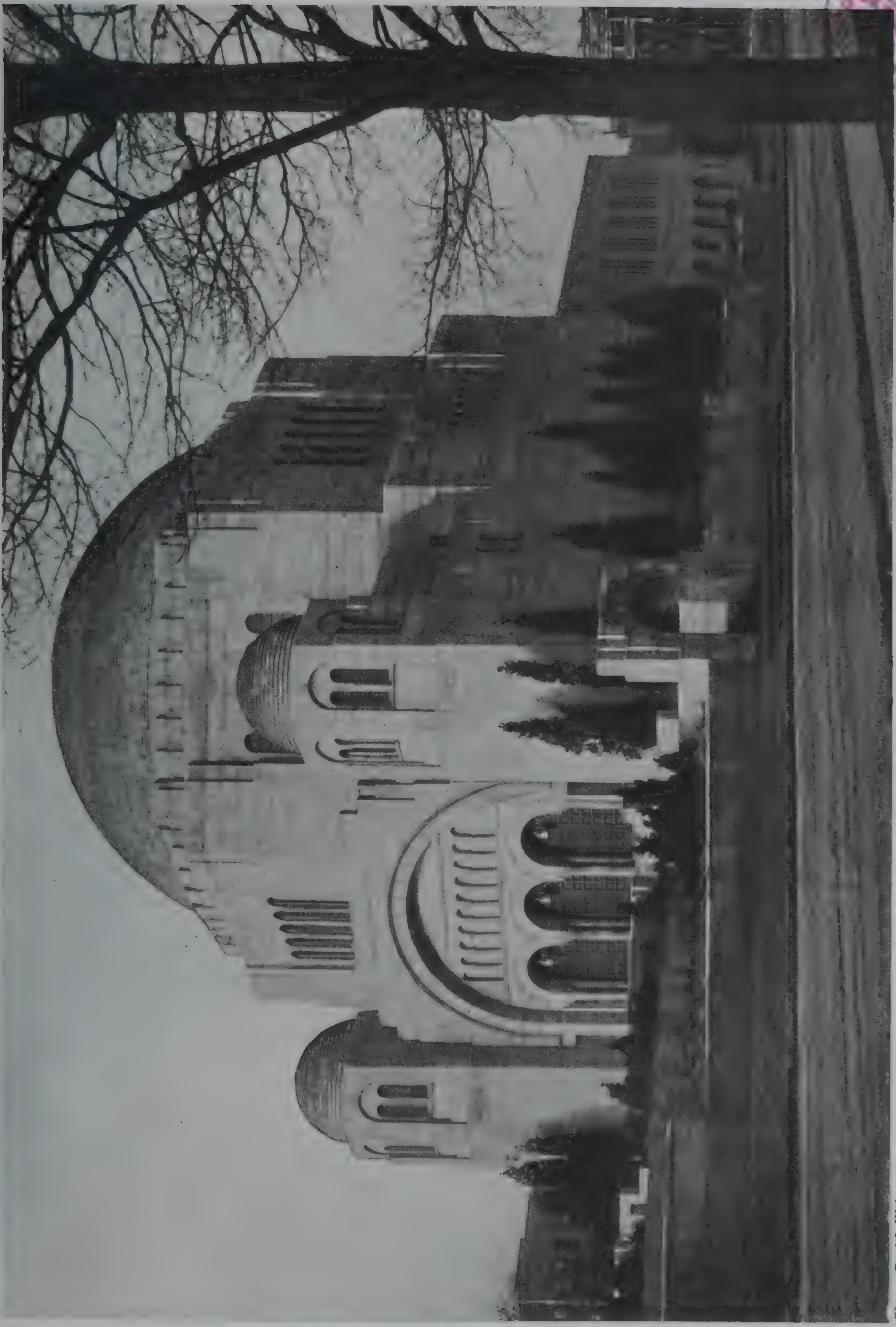
City National Bank, Binghamton, N. Y.

Showing a well lighted and ventilated workroom on the roof. The ceiling has been acoustically treated for sound absorption —a very necessary provision.

deep. Rear offices may be 20 or 22 feet. Keep windows as near the ceilings as possible, and have the radiators off the floor, below them. Concrete floors are best, and they should be finished over the whole area, so that when partitions are changed the floors do not need refinishing. Tile partitions are usually preferred by the superintendent. Make all doors the same size, so as to be interchangeable, also all windows. If all windows are the same size, it simplifies fitting them with shades. Remember that tenants want light, and if your architect is so infatuated with wall surfaces that he wants to build brickwork instead of providing windows, discipline him, even to the extent of appointing his successor. Corner rooms always rent first, because they are lightest; therefore ample window area is a first consideration. Get expert service for engineering and heating. Over-heating is as costly an error as under-heating. All offices should have picture mouldings. All doors should have transoms and automatic door stops. Decorate the walls and ceilings by painting them, and the landlord might paint the floors once for each tenant, the tenant to keep floors in repair. Line the corridors with marble, as high as you think you can afford,—and then some. Corridor floors should be of terrazzo or perhaps of marble. Good corridors are essential, and a good elevator lobby on the first floor is still more so. Build well to rent well. Charge more for the upper stories than for those lower down. Mezzanine or second story stores are coming into vogue, and always rent for more than office areas. They must have real show windows, though, in the corridors and on the street. Provide hot and cold water in each room and ice water in halls; have toilets for men and women on all floors instead of on alternate floors, since this always involves the elevator service. Provide for metering each tenant for electricity. Get enthusiastic about burning oil for fuel, and either use it or provide for using it. Give your building to a real estate man whose business it is to rent it, and don't try to do his business for him, but attend to your own. And, last but not least, note this advice: Don't fill your banking room with columns because the office building above has to be filled with columns. Pay for girders or trusses so as to eliminate all columns if possible. That is what our marvelous steel construction is for,—to give unobstructed areas. There never was anything like it in any age, and there is nothing like it for the bank. It is absolutely impossible to do a banking business comfortably in a forest of columns. Four should be the limit, and it is possible to locate these at the four corners of the screen where they will be practically out of the way; but the unobstructed area is always the best, and as a result of it a wonderful thing happens. Between the trusses required to support the superstructure is a place for all the things which are put in the basement and never should be there—the locker rooms, toilet rooms, stationery room, file rooms and the like. Here is the ideal location for them, where they can be up out of the ground and well ventilated.

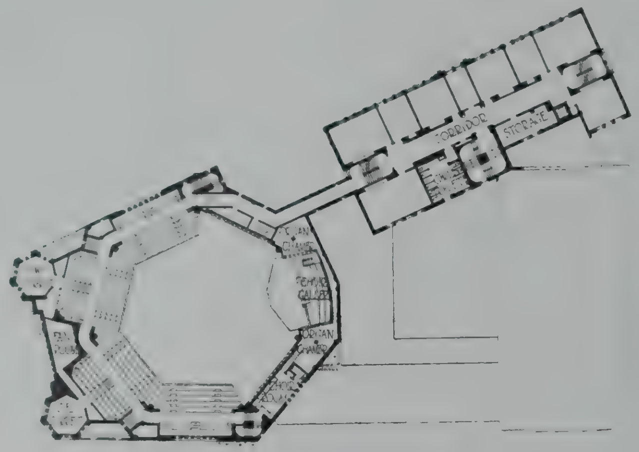
Such in fact is a brief resume of the delightful possibilities of bank building. Apart from all the details there stands back of the whole problem the necessity for a fine, restrained and sustained architectural expression. At times commercialism must necessarily limit, but it should never eliminate, real dominant qualities of architectural excellence. Granted this excellence right down the line, and we can say with conviction and without qualification that a new building is usually the bank's best bid for business.

Plans on Back

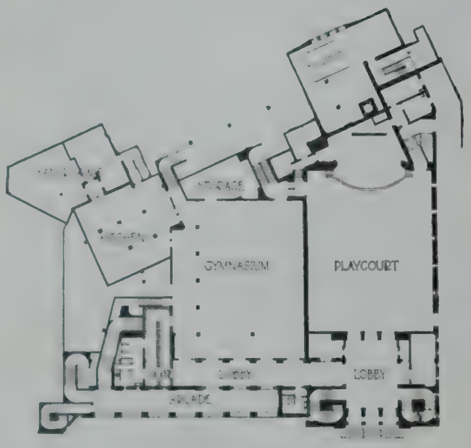


Photos. Paul J. Weber

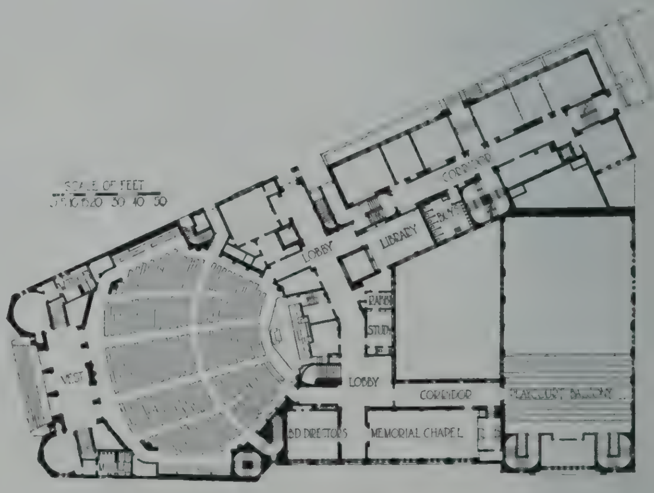
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT



BALCONY AND SECOND FLOOR



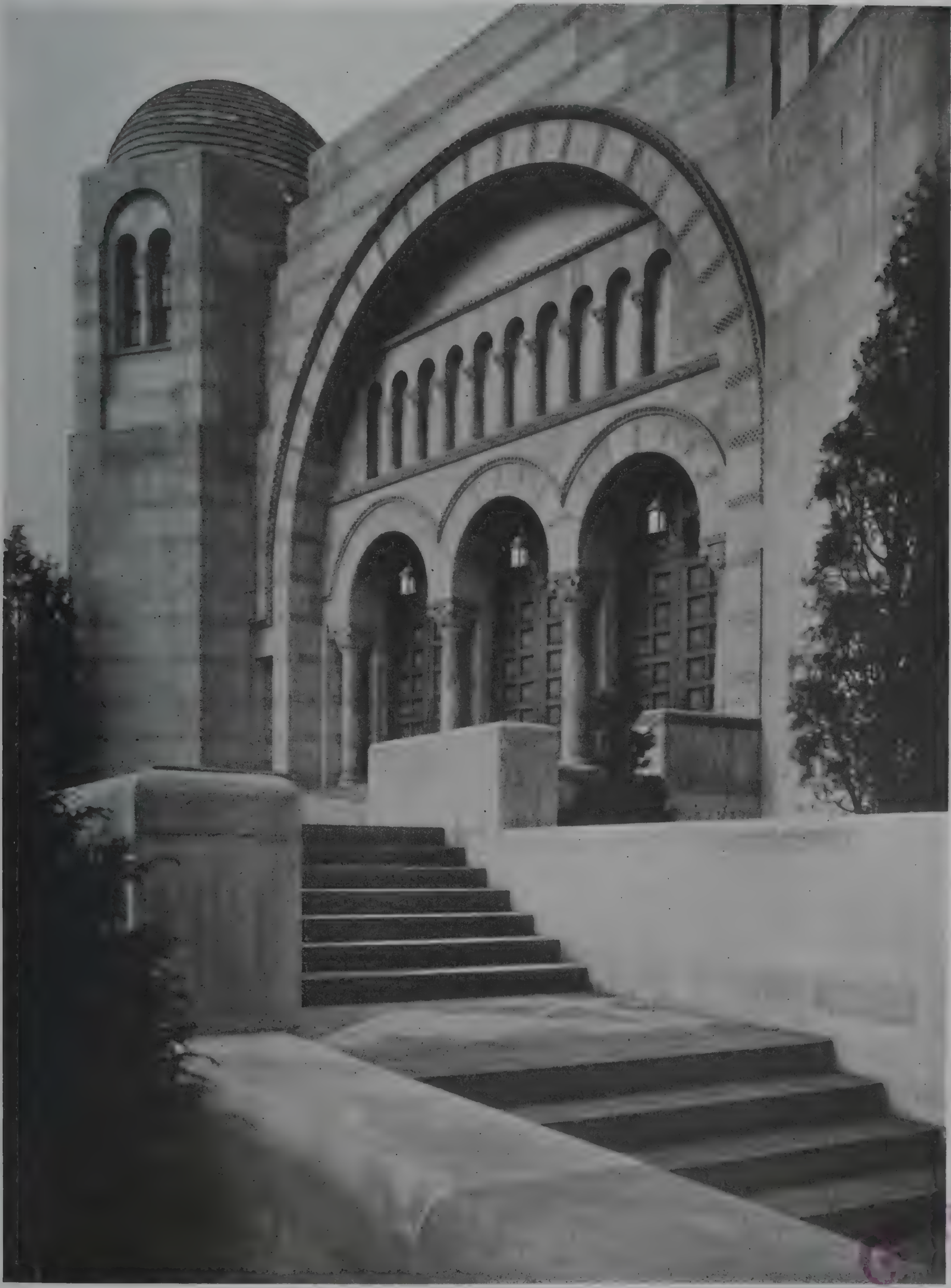
BASEMENT



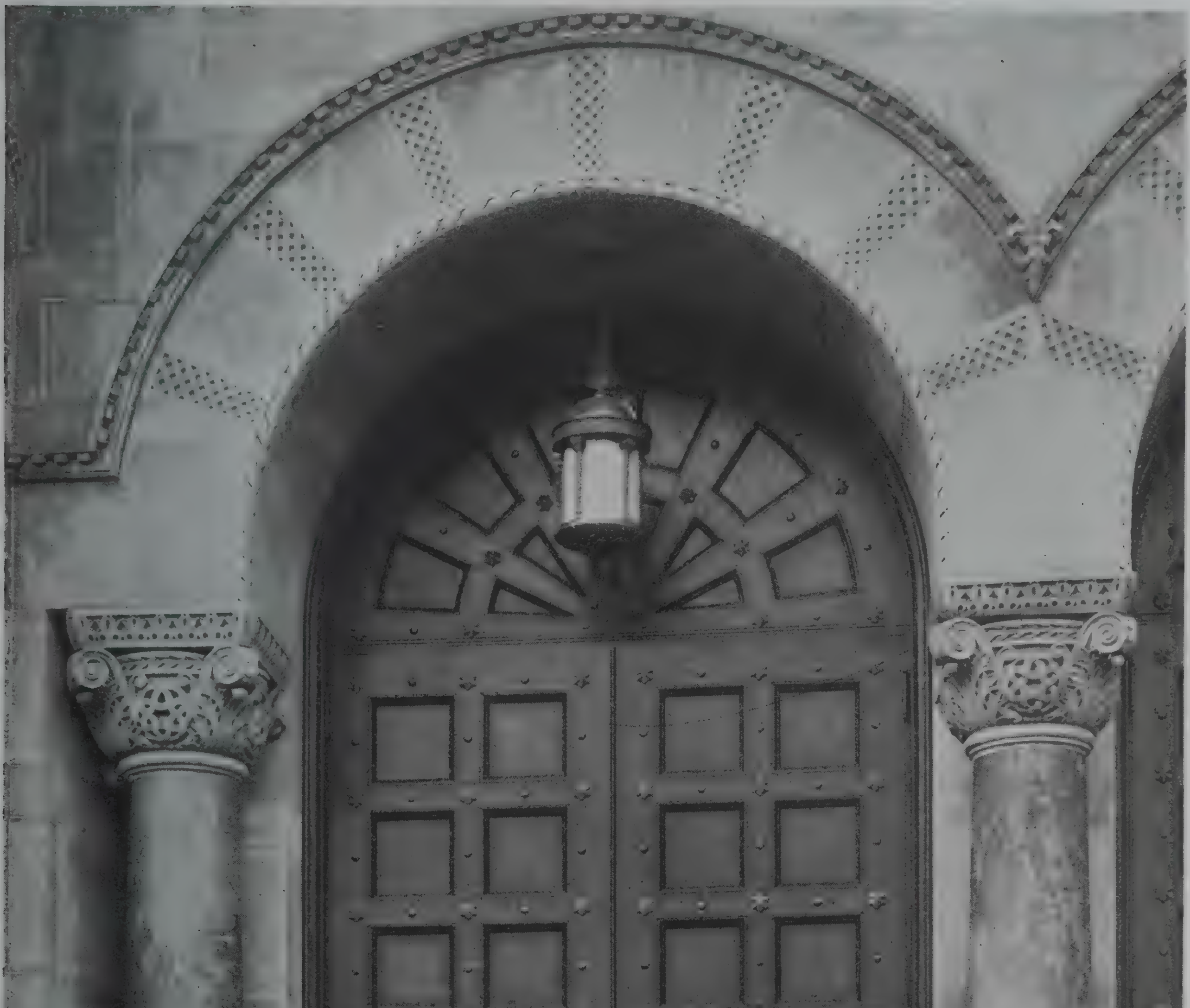
MAIN FLOOR

PLANS, TEMPLE TIFERETH ISRAEL, CLEVELAND

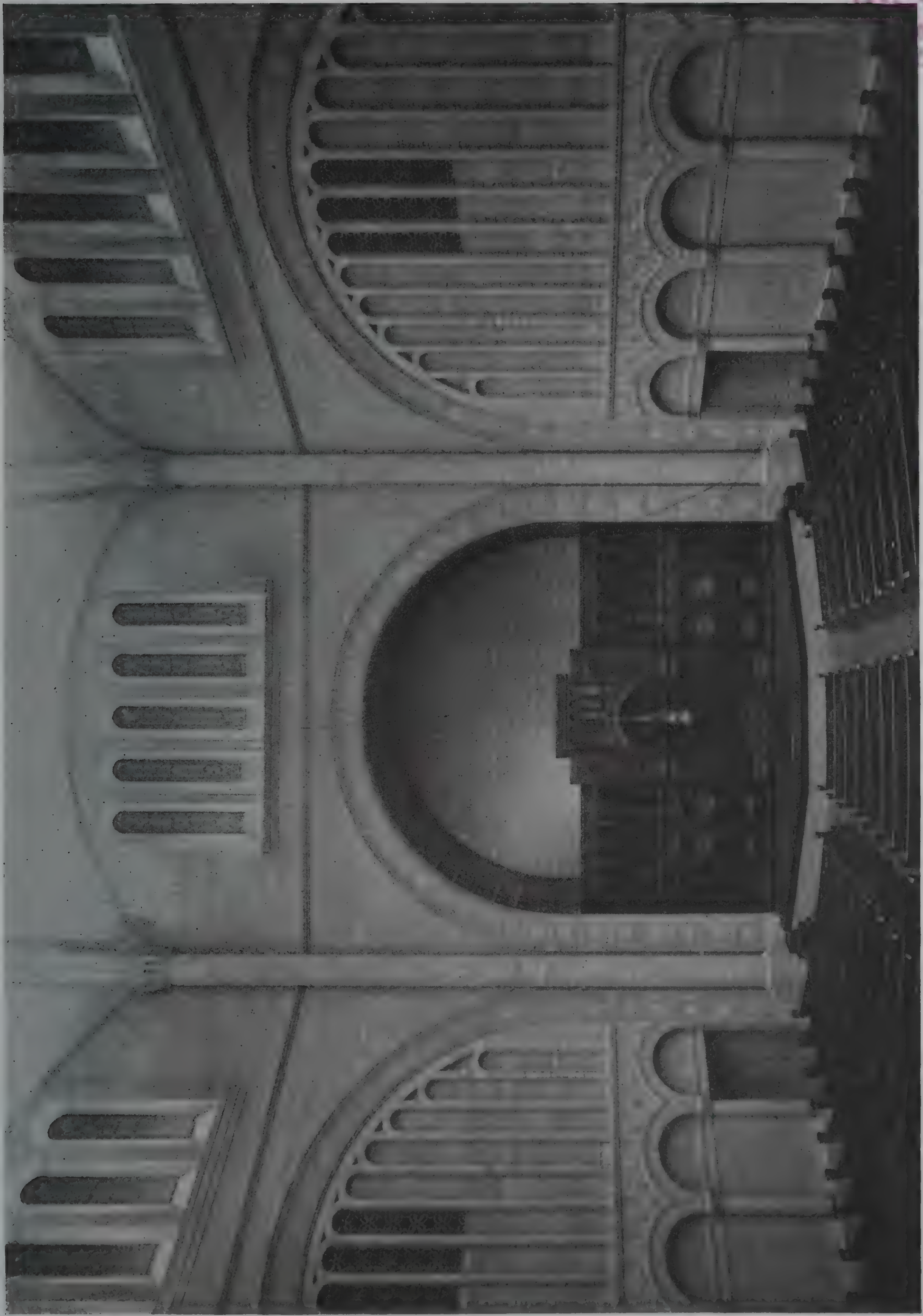
CHARLES R. GRECO, ARCHITECT



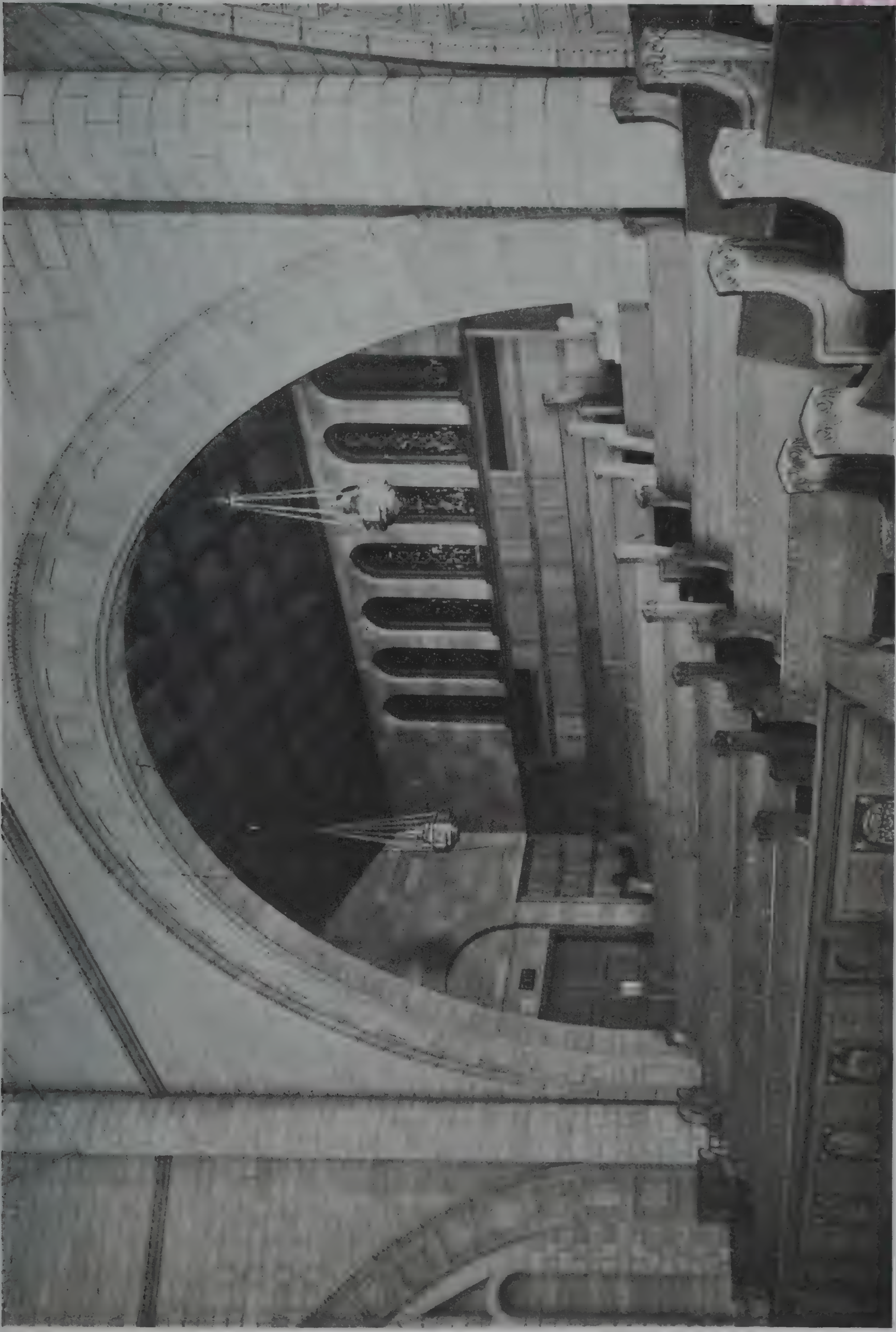
DETAIL OF ENTRANCE
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT



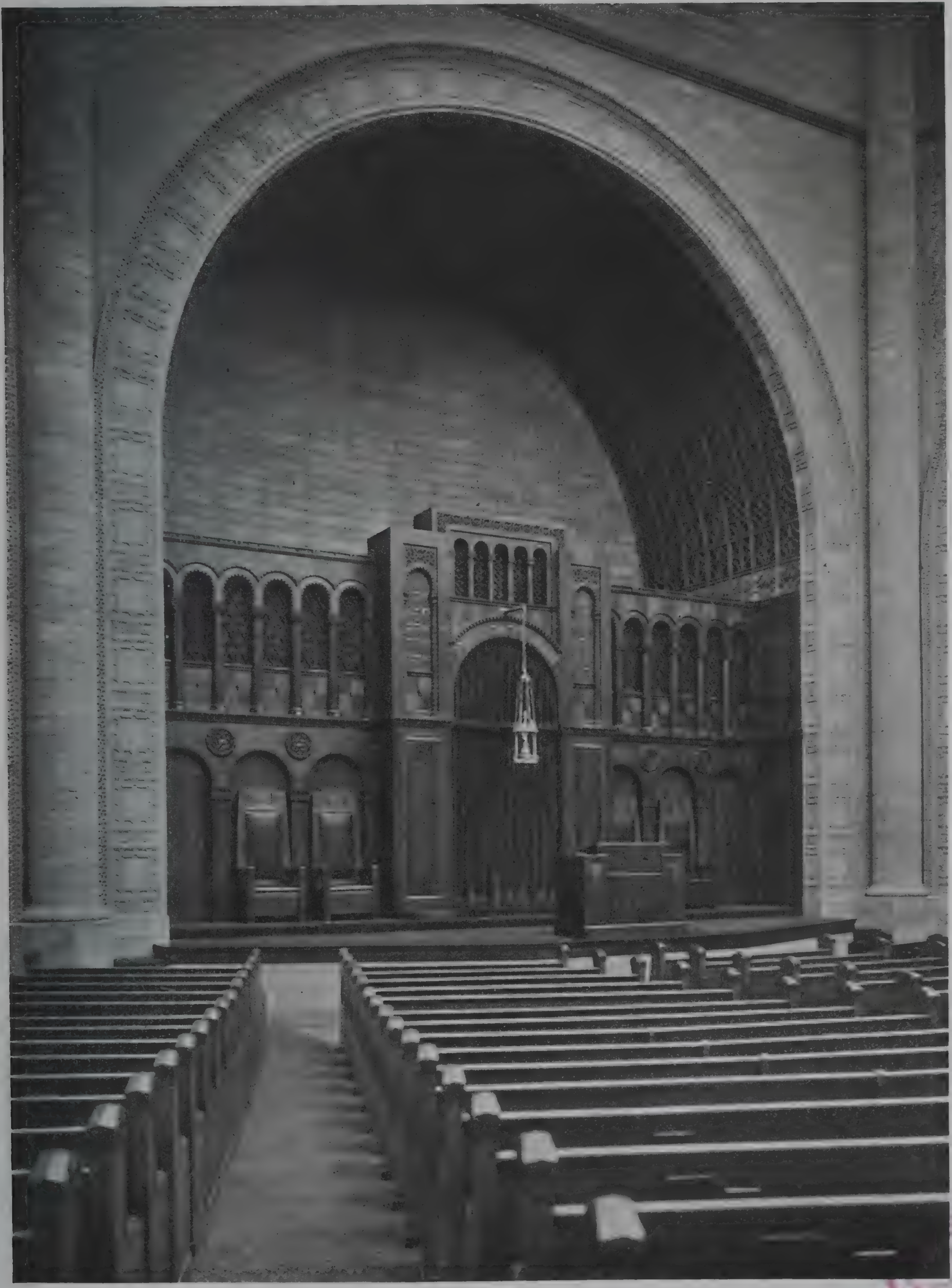
DETAIL, ENTRANCE DOORS
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT



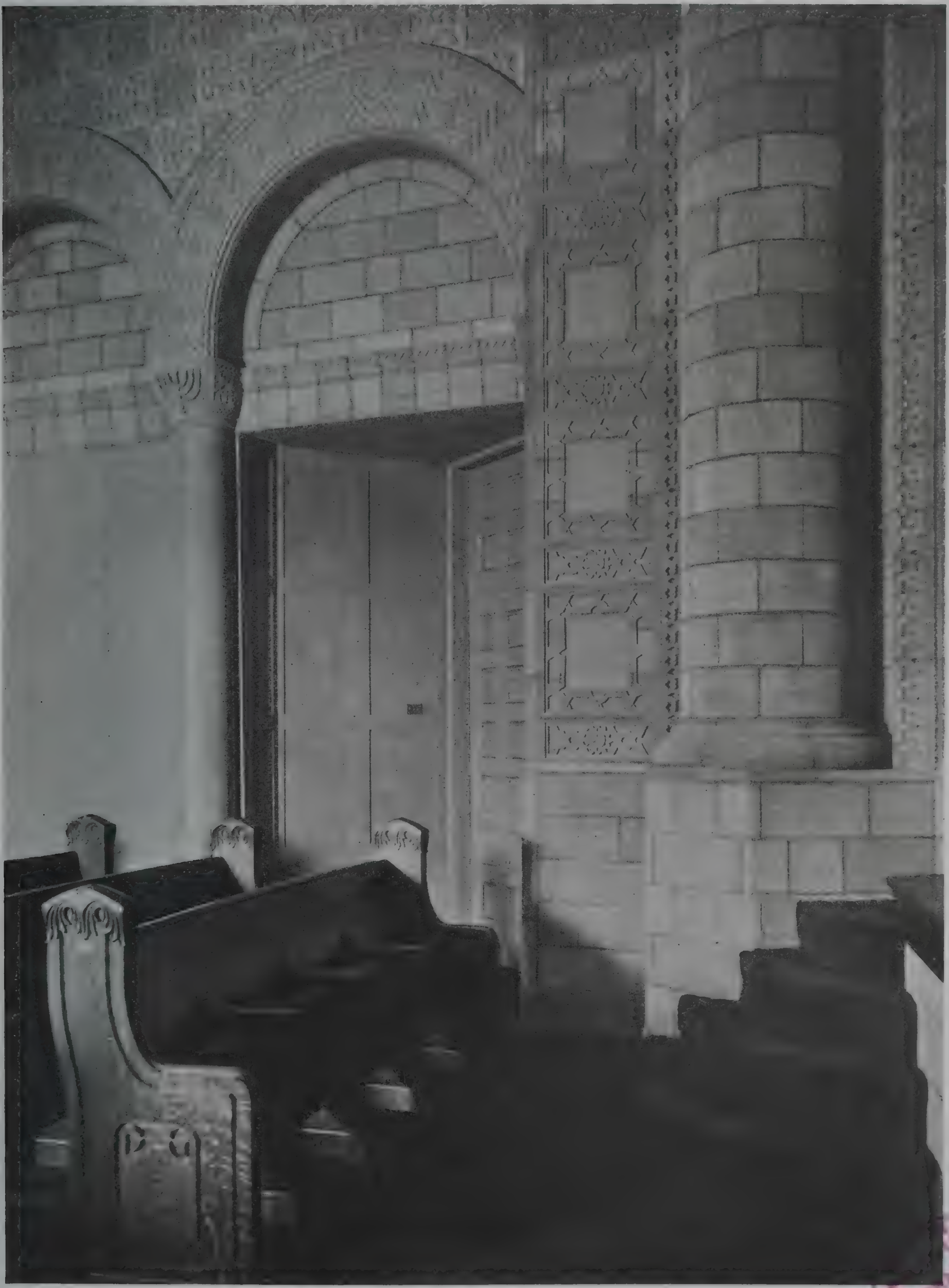
INTERIOR OF TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT



DETAIL, ONE SECTION OF THE BALCONY
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT

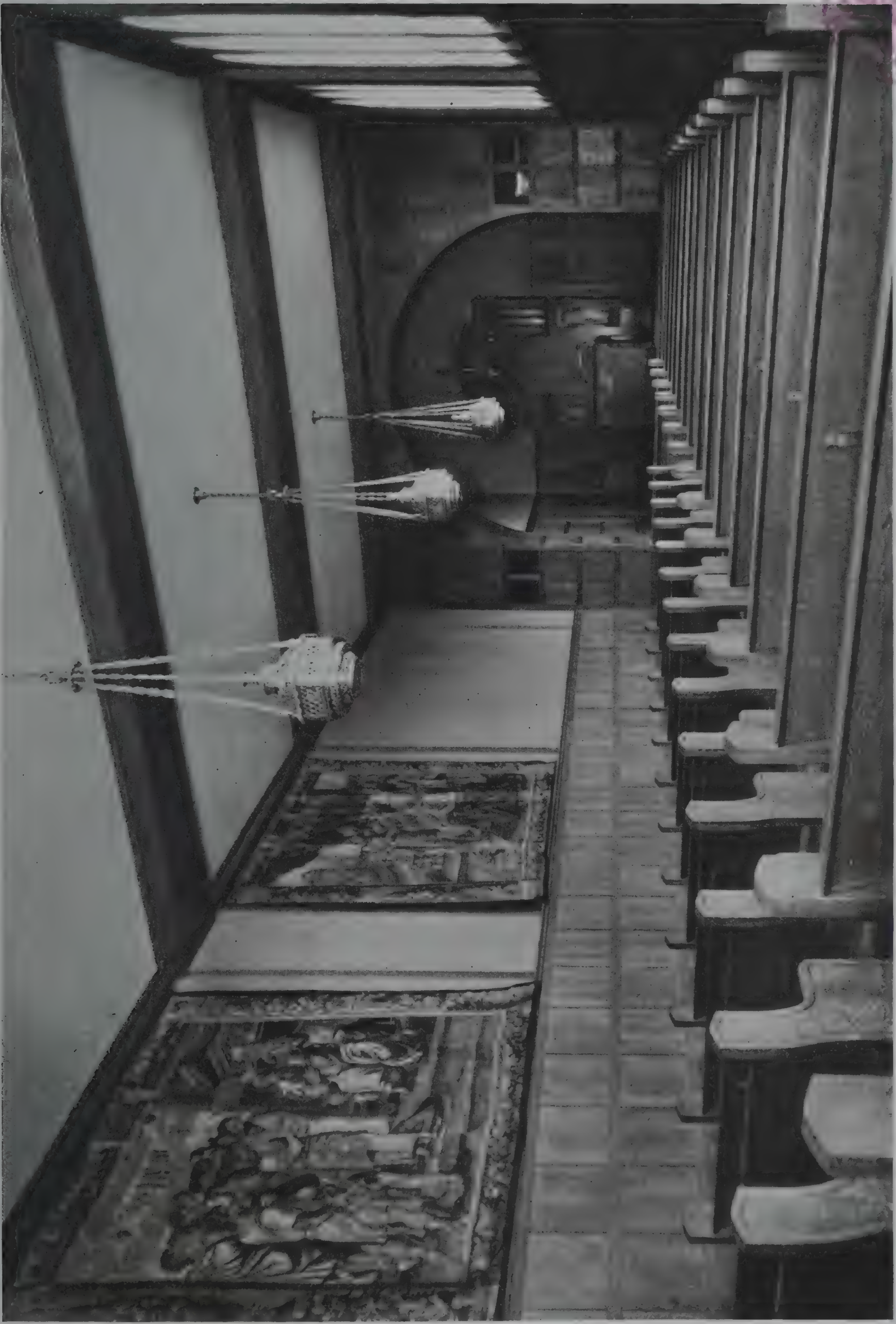


DETAIL, ARK AND CHOIR GALLERY
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT



DETAIL OF ARCH AND WALL DECORATIONS
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT

LIBRARY



THE CHAPEL
TEMPLE TIFERETH ISRAEL, CLEVELAND
CHARLES R. GRECO, ARCHITECT

Savannah's Architectural Background

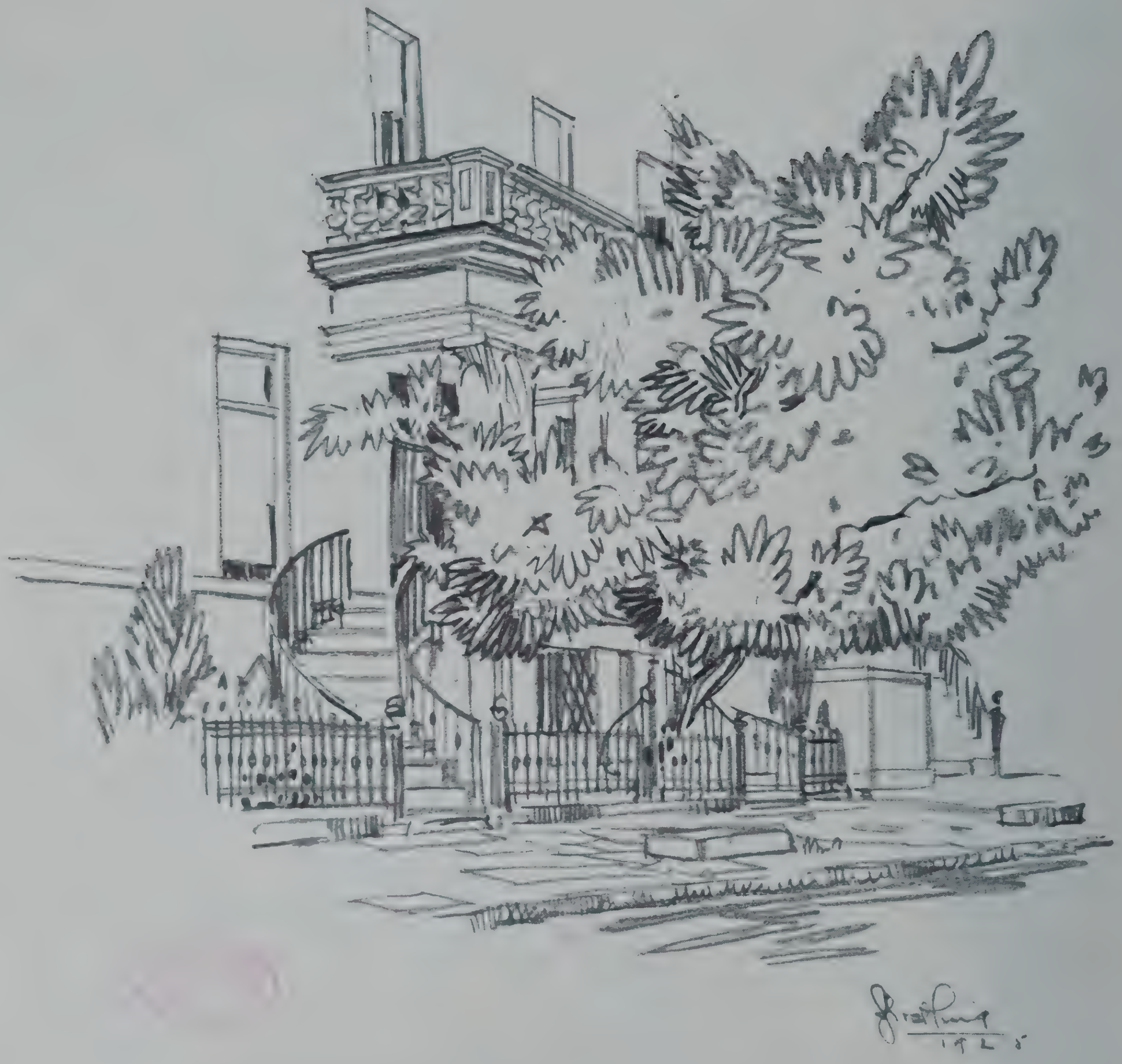
With Sketches by WILLIAM P. SPRATLING

TO one who has visited or is familiar with New Orleans, Savannah would probably appear the older. It has that sedateness and dignity that only an English tradition can give, and which is apparent in most of the old architecture, not only in the grand mansions of the rich, but also in the humble homes of the poor. This air pervades the entire city.

Savannah has much in common with old cities farther north, Charleston, Norfolk, Baltimore and, most noticeably, with certain cities of New England. There is a strange similarity found here to the snug little architectural mannerisms seen in the older parts of cities like New Haven, combined with a graciousness and leisureliness that is entirely the South's own. The streets are broad and shady, and the houses are beautiful and dignified, with doorways raised above the basements, and with their porches and high stoops asserting an air of restful quietude.

The city, with its many open spaces is perfectly planned. In fact there is a pleasant, shady, grassy "square" to be found every block or so. The trees and shrubs which fill these squares, as well as the center spaces and sides of the larger streets, afford a profusion of luxuriant semi-tropical growth that is unequaled anywhere, even in Bermuda. It is remarkable, on coming up Bay Street from the docks, to note how well the large modern hotels and bank buildings fit into the picture. Luckily they are not numerous, since on the same square are such fine bits of early architecture as Christ Church (rebuilt in 1804). In the vista, two blocks away down Bull Street, set among tall, thickly clustered live oaks, is

The Old Brick Houses Possess a Quiet Dignity and Charm



THE WELCOMING GRACIOUSNESS OF CURVING ENTRANCE STEPS

THE HUMBLE HOMES OF THE POOR HAVE A QUALITY OF PICTURESQUENESS ALL THEIR OWN

From Behind Old Walls of Brick and Stucco Peep Quaint Outbuildings

seen the pure Georgian spire of the old Independent Scotch Presbyterian Church. Just around the corner from a tall bank building is an old house, a sketch of which is shown here, which at present contains the office of an architect. Possibly the transition from new to old is facilitated by the masses of foliage with their deep and welcome shadows. The fine old granite Custom House and the shipping offices along Bay Street add much dignity to that part of Savannah. In the streets, which are mostly broad and quiet, one notes a certain casualness in the way an alley decides to be a street, and in the next block or so suddenly becomes an alley again.

There is about Savannah a spirit of easy-going kindliness, which spirit is supposed more or less to pervade the entire South. Here there is no mistaking it. These old brick houses have a feeling of quiet and calm about them, combined with a certain welcoming graciousness in the curves of old marble steps and the wrought iron handrails as they lead up to the fine, old fashioned, white paneled doors.

Whether or not this charm is due to what a commercial man would call "business stagnation" and "low scale of wages" doesn't really matter,—that is, it doesn't matter to one who loves the beauty of old things. Certain it is that the architecture of Savannah possesses a characteristic charm of gentility and simplicity that is most difficult to secure in modern modes of building. It is possible that Savannah may have missed her opportunity for a business boom or something stirring. If this is so, we must confess that we are rather glad of it, for in missing much, she has in one way gained more, because it has been possible to preserve something that would otherwise have been demolished and trampled underfoot in the frenzied rush of modern business life.

The Olympia Fields Country Club

GEORGE C. NIMMONS & COMPANY, Architects

APPROXIMATELY three million people of the United States play golf, and approximately two million boys carry the clubs or caddy for these golf players. Nearly every city of from ten to fifteen thousand people has its golf club. Chicago alone has about 160 golf courses, which, if reckoned in acreage, would equal at least 15,000 acres of land. It is estimated that the members throughout the country will pay $100,000,000 as club dues this year, of which the caddies will receive about $40,000,000. In addition to this, according to estimate, $50,000,000 will be spent for golf apparel, $30,000,000 for golf balls, $13,000,000 for golf clubs, and $25,000,000 for new club houses. These figures testify to the value of golf.

Golf has become a topic of common conversation, a subject of news for the papers, and often a recreation in which all members of the family indulge. The up-to-date club furnishes not only facilities for playing golf but also amusements and entertainment for old and young of both sexes. It has become a social center for cards, musicales, dinner parties, outdoor and indoor dancing, and a place of residence for those who can take a vacation in the country during the summer. Any pursuit followed by so many people, who apparently find so much in it to attract and amuse them, must therefore be of material importance. And so golf has become within one generation one of the outstanding features of the social life of almost the entire American people.

During the last generation people became so intensely and strenuously absorbed in the business and professional activities of the day that it appeared as if there were nothing which could induce them to give up any time from continual pursuit of their daily occupations, which were materially affecting their health; and yet in some unaccountable way, golf has crept into the lives of these people and become an important part of it. Even among the busiest and most distinguished men of our times, engagements to play golf are given their places on office calendars among the most important business and professional appointments. At first it was with considerable misgiving on the part of many that they took this time off for play, and it was not an uncommon sight to see some prominent man keep himself in the background when he took the "golf special" for his golf club,—and if discovered by his principal client or customer, to remark casually that his physician had recommended that he take a little time off occasionally for recreation! When aboard the train, it is customary for four men who are going to play to find seats together, so as to discuss the important subject always to the fore on such an occasion,—that is, how many strokes as a handicap are to be given one pair of players by the other. Captains of industry and the cleverest of business men will often use, for amusement, the skill and big business experience which they have acquired in trading, to secure the largest possible handicap to win three golf balls! Another popular subject of discussion is some phase of the theory of playing the game. So great is the skill which may be acquired, that perfection of play is rare, and this field of discussion is practically limitless. A skillful player may play the game easily and make his "par" with apparently little exertion, and yet at the same time, when in a tight contest and pressing for advantage, he may hit the ball from the tee with all his might, and when he comes near the green, handle his smaller clubs with all the delicacy used with surgical instruments.

Golf also reaches into the field of mental processes to be gone through with when making the strokes. There are only seven strokes which the well informed psychologist can explain in detail, and regarding which he can point out how the mind can be trained and disciplined so as to guide the hand properly in playing the game. One amusing thing about all of this is that the correct way to hit a golf ball is, as a rule, the very opposite of the beginner's conception of it, thereby adding much interest to the never-ending process of learning to play the game. The result of golf in this way has been nothing less than a life saver in this country, and the authorities agree that it has added as much as ten years to the lives of many of the men who have taken up the game. Golf is one of the cleanest sports we have, as it is seldom played for large stakes or made the medium of gambling. It has become a typical American institution, and is today exercising a most wholesome influence on the people of this country.

Golf club houses have become, therefore, one of the most important subjects for consideration and study by the architect. Golf club architecture in the beginning consisted largely of altering and enlarging the houses usually found standing on the land bought for the golf grounds. After that came the first new buildings, which very often had a common defect in plan and arrangement in failure to provide properly for the space needed and for the service required in the "back" of the house, and for the lockers of the golf players. Since then, however, these defects generally have been corrected, and the golf club house has been developed and improved so as to provide adequately for all of the service and entertainment required by its members. The club house caters to the entire family.

The Olympia Fields Country Club House, herewith illustrated, marks the completion of an undertaking by a few enthusiastic golfers, which was declared at first, on account of its size and cost, to be impossible of accomplishment, since the organizers were not men of large means. It presents an instance, however, which proves the strong appeal of

Detail, Fireplace in the Great Hall

golf today, and of the surprising extent to which the golfer will give backing and support to the erection of his club house. The management of the club now proudly announces that "The Olympians" have the largest and most complete club house in the world. It undoubtedly is the "largest," and the declaration as to its being the most complete is of course only the normal and natural expression of a well pleased client, the truth of which will be correctly and dispassionately judged in due time by the public. The club was originally organized nine years ago by Charles Beach, who discovered a beautiful tract of 700 acres of land and originated the idea of having four wonderful golf courses radiating from a prominent central spot on which should be built a great club house, commanding attractive views down the courses which were to center at this place. In addition to golf there were to be provisions for all the other outdoor games and a headquarters for outdoor athletics, which was suggested by the original Olympia of Greece, from which he took the name. For his success in carrying through his undertaking he depended upon the beauty and fitness of his land, the great plan of his enterprise, and its resulting appeal to the golfer. Mr. Beach won, and with the assistance of Alonzo A. Stagg, Athletic Director of the University of Chicago, James P. Gardner and Charles M. Smalley, the three men acting in turn as presidents of the club, and with the hearty support of many other enthusiastic Olympians, the undertaking was carried through and the club was made complete in almost every detail. It has 1000 regular members and 300 members of other classes. The membership is complete, and there is now a waiting list. The dues are $125 per annum, and the annual income from all sources is about $225,000. The land and all the improvements are paid for, and the only financial obligation is a bond issue, held by the members, of $500,000 on a property the value of which is $2,500,000. The finances are on a firm basis.

The land comprises approximately 700 acres of rolling, partly wooded, country, with a stream of water running through it, and it is located about 25 miles south of Chicago on the Illinois Central Railroad. It was bought for $300 an acre, and now with the completion of the club house a value of $2,000 per acre has already been established for the poorest residential property in the vicinity. The land can conservatively be valued at $1,500,000. The club house consists of a series of buildings one and two stories high, all joined and arranged around two courts. The front of the main building is about 600 feet long. The construction is fireproof, made in some parts of concrete and in others of steel skeleton and tile. The total cost of the building and its furnishings was $1,000,000, these being recent figures.

In designing the structure, the scheme adopted for the plan included a wide veranda in front, overlooking the courses and acting as a thoroughfare connecting the men's and women's locker buildings with the cafeteria between them. The north end of this veranda connects with the main part of the club house containing the dining rooms, the great hall, and administrative departments. The south end of the veranda connects with the caddy and club storage departments, the club professionals' headquarters, and the golf shop. The providing of caddies and the taking care of clubs are a complicated proposition where there are four golf courses and about 10,000 clubs to be cleaned and carefully put back into 1,200 golf bags, when it is remembered that the misplaced or lost club of any member is sure to be his favorite club, and that its loss will cause a protest from him sufficient to raise the roof. Such is its importance.

When a member determines the course over which he wishes to play, a caddy is selected for him and sent with his clubs to the course selected. Here again accuracy and good organization are required of the club management in order to prevent sending the caddy to the wrong course, which would cause delay and confusion. This club has about 1,400 boys registered for caddy service; there is a caddies' club house with its playground, where play is supervised and instruction given as to the boys' duties.

The locker departments are no doubt the most important feature of the club house. There are two separate wings of the building built for this purpose, one for men and another for women. Between them there is to be a swimming pool set in a garden not yet completed. The men's locker wing is a large cross-shaped building, as is shown by the plan. It contains 1,200 lockers. The reason of its being cross-shaped is that this is the one form that makes shorter the distance to the shower and toilet rooms and to the front of the building, where the headquarters of the valet service is located. Good valet service in a locker room is the finishing touch to the convenience and enjoyment of the golf player. The valet chief is the intimate and dependable friend of everybody, because it is to him and his organization that each man must look to take care of his laundry work, sew on the vital buttons, shine his shoes, do up his bundles, bring the drinks, deliver messages to friends, break the news to those at home that father has been unavoidably delayed and may be a trifle late for dinner, and to perform a number of other diplomatic services that have to be rendered. Here the valet chief has an organized headquarters with information desk, tailor shop, shoe shining shop (where shoes are shined by machinery, since there are hundreds of them), a regular soft drink bar, and a mechanical clothes drying equipment for use on rainy days. Equipment is unusually complete.

The main room of the men's locker department is a huge affair, some 250 feet long, with a floor plan which suggests that of a cathedral, and with clerestory and side windows that give good light and ventilation. The shower baths are enclosed in separate rooms and not arranged around the walls of the locker room, as in a few recent clubs, because it has been found that this latter arrangement creates so much moisture in the air that at times the metal parts of clubs in the lockers will rust, clothes will become damp, and shoes mildew. The lockers are each 2 feet square, of steel, and arranged in alcoves with a bench and carpet in each aisle. In addition to the lavatories and toilets there are a barber shop and rest room, adjuncts which are found to be useful.

Women have equivalent facilities in their wing of the building. The lockers have the same arrangement as those of the men, and the organization of maid service is as complete as that of the valet service for men. In connection with this wing there is a separate department for small children, with its special toilet facilities. There is also near the clubhouse an attractive playground completely equipped for children. The women's club room, at the front of their locker department, has connection with the cafeteria kitchen, from which tea and refreshments can be served. The cafeteria is located between the men's and the women's locker departments, and serves cafeteria luncheons during the noon time only. Other parts of the club house include the lobby, the great hall (called "lounge" on the plan), the cafe, the main dining room, kitchen and administrative offices, all arranged conveniently to one another.

The arrangement adopted for the approach to the club house and for the parking of cars has proved most satisfactory. The old arrangement, formerly adopted by country clubs, of allowing chauffeurs to drive up to the front doors or under the buildings, has with the increase in the number of cars used become the most disturbing and disagreeable feature of a country club where this arrangement exists. The plan adopted here, which means having the main entrance to the lobby in the rear of the house, with a large parking space extending away from the building, has resulted in making it possible for hundreds of cars to arrive and depart without being heard by those in the front of the club house. The suburban railroad station is located a short distance to the rear of the club house, and within its own grounds, forming part of the club.

Detail, Path to the Locker Rooms

The great hall or lounge is a huge room, resembling somewhat the principal room in an old baronial hall, with its great timber trusses, 40 feet high to the apex of the roof, its oak paneled walls, large fireplaces, and with its ample musicians' gallery at one end. This hall, however, has its windows extending down near or to the floor, through which on one side appears the garden court with its fountain, trees and flowers, and on the other are seen the veranda and vistas of some of the landscape features of the various golf courses, which are unusually beautiful.

The main dining hall is on the opposite side of the garden court from the great hall; the cafe forms another side, and in front are the terraces, including the semi-circular dancing terrace, surrounded by a stone balustrade. The kitchen, as shown by the plan, has an unusual location in reference to the main dining hall and cafe. It extends diagonally away from the angle at which these two rooms meet. This arrangement has the advantage of bringing the kitchen into the closest possible relation with the middle of these two rooms, thereby shortening materially the line of travel of waiters in the service of food. In case also of a large gathering at the club, the speakers' table can be located at the angle of the two dining rooms, from which place the voices will carry farther than from any other point.

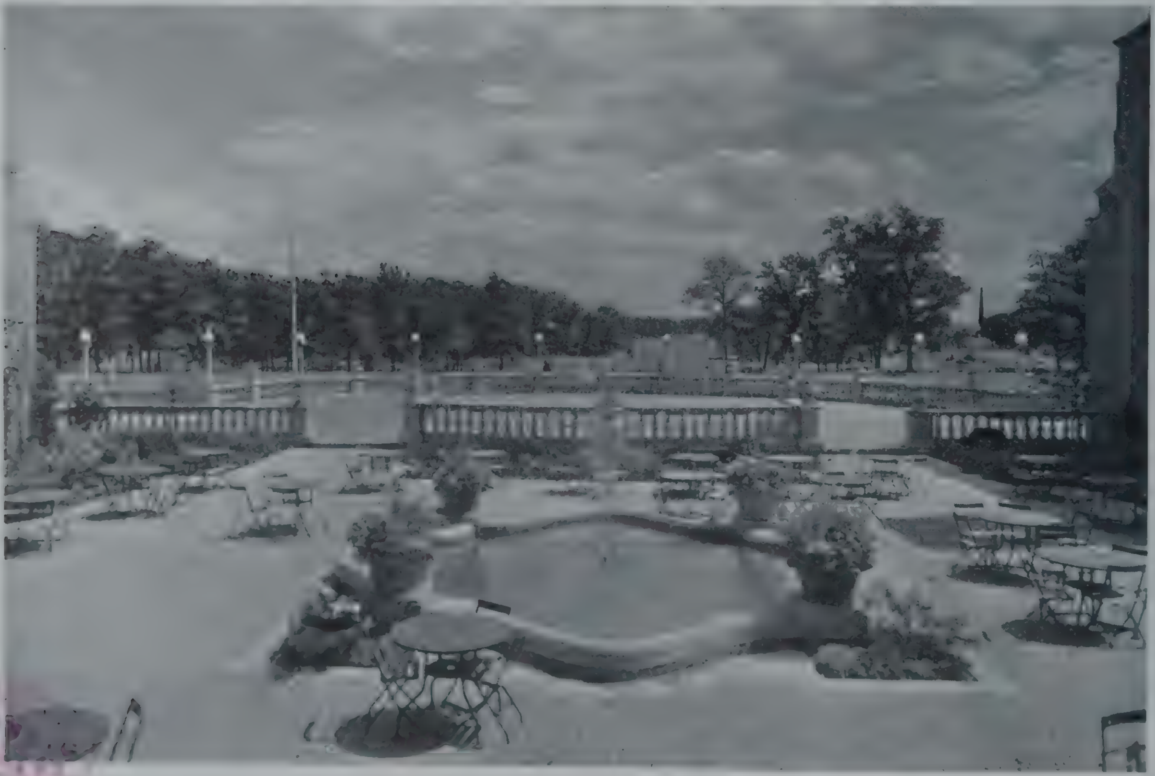
The kitchen is finished in white with blue trimmings, and it is fitted up like a workshop with all of the latest equipment for producing good food and for affording the best of service. It has good light and ventilation, and below in the basement are some unusual features. It has four very large refrigerator rooms, in which an ample supply of perishable foods can be kept. The kitchen store room resembles a grocery store. The kitchen employes have their own locker and toilet rooms and a cafeteria dining room. There is also an officers' dining room and a place for members' chauffeurs, an employes' rest room, a hospital, a complete laundry, an ice-making room, a carpenter and paint shop, and a place where the garbage is treated by a process which consists, first, of recovering all of the flat silverware which has gotten through the kitchen and pantry (and this is a considerable amount), and then preparing the garbage for sale to the farmers for use as fertilizer, an excellent means of disposition.

There are about 300 regular employes of the club, and an additional 100 waiters are required for weekends. A large servants' dormitory is located in the woods some little distance from the club house, where they are comfortably housed and where they can have their recreation and make all the noise they desire. These provisions for employes and the various departments for service at the back of the club house are very essential, in order that such an institution may operate economically and give service.

The entire front of the club house, with an extent of some 600 feet, has a second story in which are located about 80 bedrooms for members. Some of these are single rooms, and others are family suites of rooms with private baths and all the appointments of a modern hotel. The men also have a large card and game room in the second story.

The exterior of the building is of stucco with a dull red tile roof and pre-cast stonework. An old fashioned veranda extends across the entire front of the building, with a half-timbered treatment of the story above. The great hall and dining hall have a somewhat Gothic character, which was often the case with the great halls of large country houses of England during the Tudor period, when some of the best country homes there were built by craftsmen who were themselves, or the descendants of, the great cathedral builders of England. The main floor plan of the club is similar in arrangement also to the plans of many old English country houses, in that the principal rooms are arranged around courts, just as were the rooms in many of these old buildings, a beautiful and picturesque arrangement.

The Olympia Fields Country Club, with its buildings and grounds completed, now starts forward on its career, which promises to be long and successful. If the game of golf continues to hold its present place in the estimation of the public, of which there is every indication, this club has a great opportunity to contribute materially to the enjoyment and health of a great many people for quite a number of years.



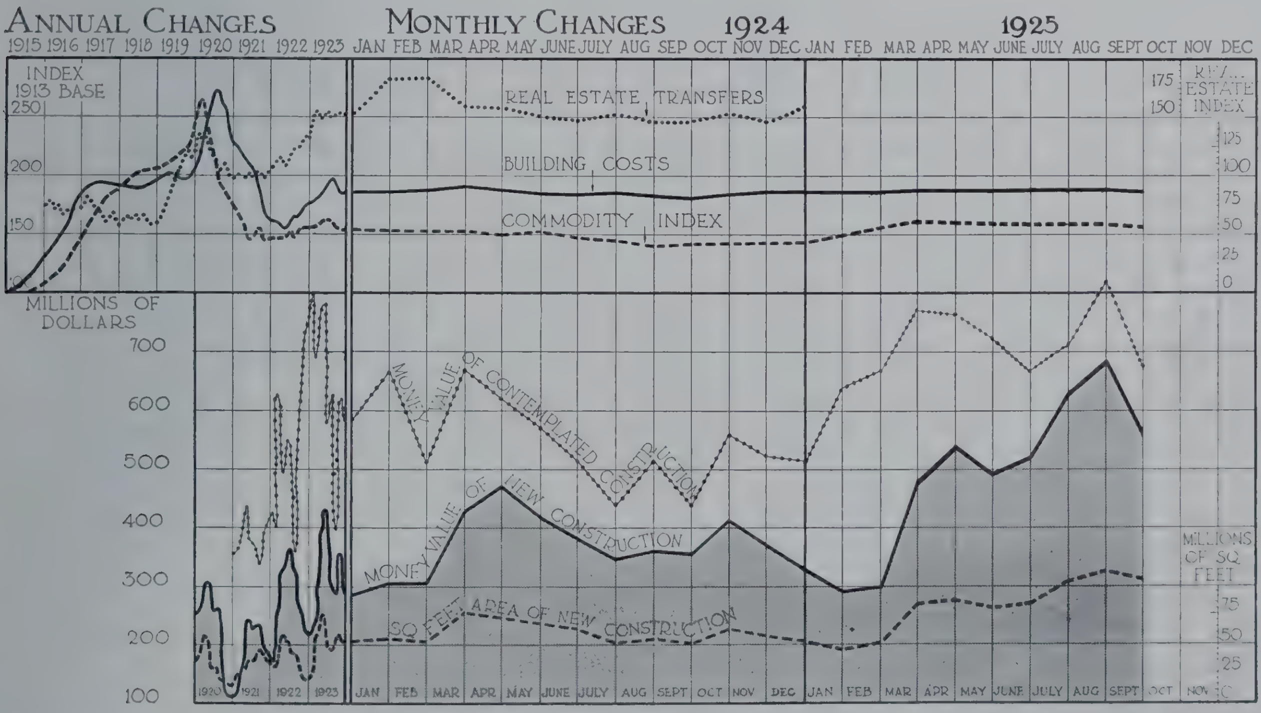
Garden Court, Olympia Fields Country Club, Olympia Fields, Ill.

THE BUILDING SITUATION

A MONTHLY REVIEW OF COSTS AND CONDITIONS

BUILDING activity continues throughout the country at an unprecedented rate, as evidenced by the trend of the various lines in the chart included here. There is, of course, a natural falling off of activity as we enter the fall and winter months, but it will be noted that the September volume of building construction breaks all records for that month, and is over 50 per cent higher than for September of last year. The interesting fact in connection with this activity is that it shows no sign of "mushroom" growth, but is based upon the sound economic development of the country. The building which is represented by the great volume of this year has been developed to meet still existing shortages, and it also reflects strongly the attitude of the investing public, which finds in the building field sound collateral and an interesting return in both turnover profits and net rentals. There is still a heavy contribution of new buildings erected for speculative purposes, but it may be well to note that the general character of such structures is much better than it was a few years ago. The mortgage interests have deliberately discouraged the very cheap and shoddy types of residential construction.

Reports from architects throughout the country indicate that most offices are busy, and that the character of the work is generally better than it was at this time last year. It is still too early to predict definitely as to 1926 activity, but the Annual Survey and Forecast of THE ARCHITECTURAL FORUM for next year is now in preparation, and it is believed that some interesting facts and figures will be divulged when this estimate is completed. An encouraging fact is that in spite of the huge volume of construction, there is no sign of withdrawing on the part of mortgage interests, and there is no feeling in business circles that too much money is going into building. On the other hand, it is the general opinion that building activity is one of the strongest economic contributors to the prosperity of the country. 1926 is evidently to be more than a $6,000,000,000 building year, and will probably establish a record which will not be equaled for many years. This momentum should not drastically decrease.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined, first by the trend of building costs, and second, by the quality of construction.

Down Draft and Dutch Oven Furnaces

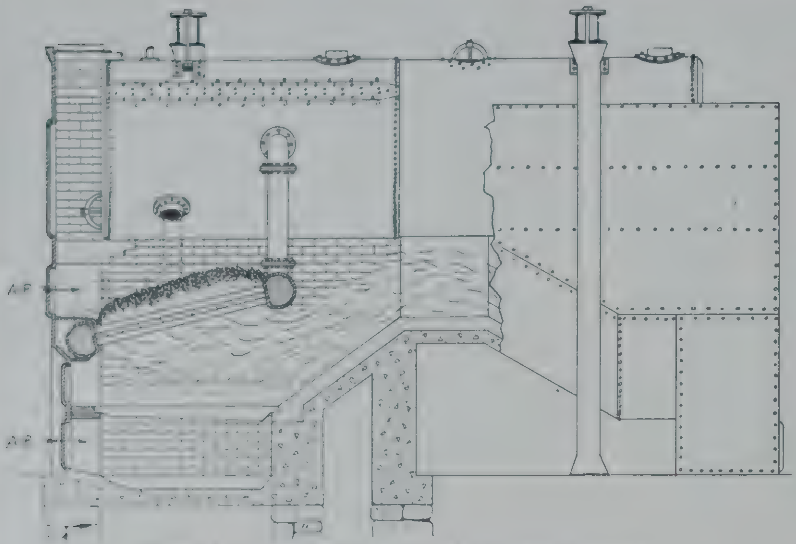


Fig. 32. Down Draft or Double Grate Furnace

Down Draft Furnaces. These are really double-grate furnaces. The boiler in each is fitted with the regulation common grate, then above this, (as shown in Fig. 32) is a water-tube grate with water from the boiler circulating through it. Coal is fired on the water-tube grate, and air is admitted above it, so that the flames pass downward into the firebox and combustion chamber. Spent fuel and small particles of coal which fall through the water-tube grates are caught on the regulation common grate, where they are consumed. The reason for using the down-draft furnace is to eliminate smoke. Most cities which have smoke ordinances limit the amount of smoke to 10 per cent, and hand firing with ordinary grates creates a dense smoke every time the fire door is opened and a fresh supply of coal is thrown on the fire.

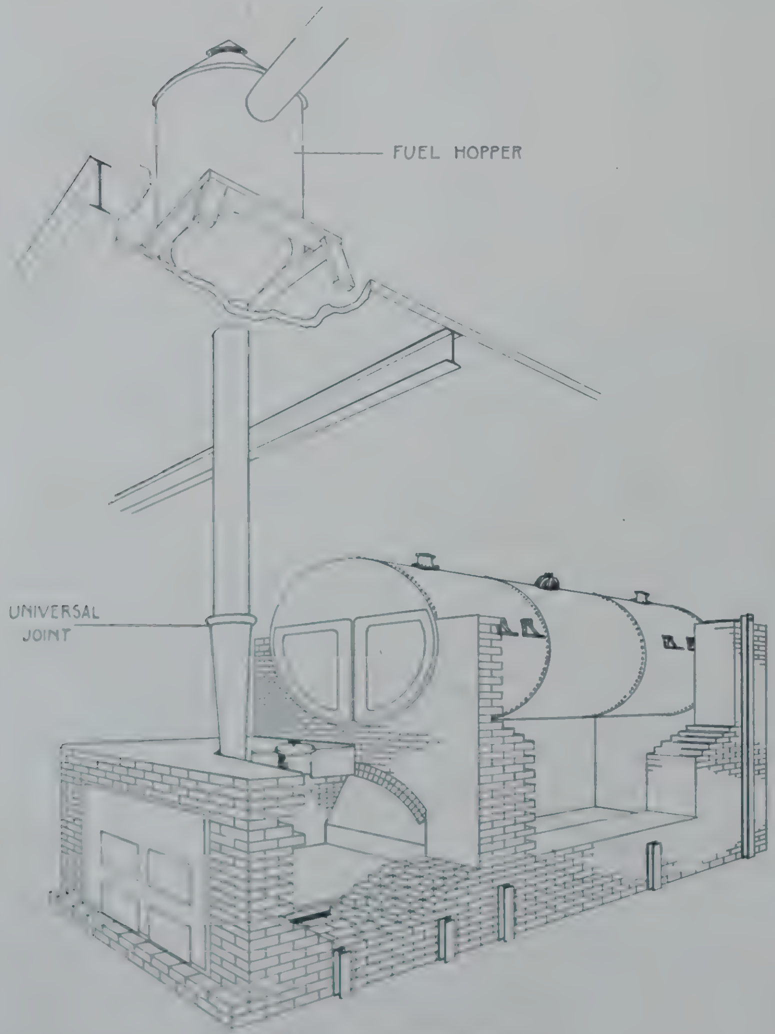


Fig. 33. Dutch Oven Furnace

Dutch Oven Furnaces. The Dutch oven type of furnace is strictly an industrial type, used in plants where there is accumulated a large amount of combustible material that would prove troublesome refuse if it could not be burned. Large mail order houses and similar institutions grind up their refuse packing materials, such as pasteboard boxes, packing boxes, straw, excelsior, cord, parchment—everything burnable in fact,—and feed it into the Dutch ovens. Mills obtain the power to operate machinery by burning in Dutch oven furnaces their sawdust, shavings, tanbark, bagasse, and other refuse. Large material is cut up in a "hog," a machine designed for the purpose. The trunk of a tree 16 inches in diameter can be put into the hopper of a "hog" and will come out at the other end cut up into chips. Fuel for a Dutch furnace can be fired automatically, as shown in Fig. 33. A blower carries the chips from the "hog," or the sawdust or shavings from the pile to a hopper located at a higher level than the boilers. From this hopper the fuel is fed by gravity to the Dutch oven furnace, entering the top openings. A Universal joint on the feed pipe enables the fireman to feed the oven through either of the inlets, and to remove the spout when a charge has been put in. Dutch oven furnaces will burn also the lowest grades of coal, lignite, coke breeze or peat.

ENGINEERING DEPARTMENT

Power and Heating Plants

COMMERCIAL TYPES OF BOILERS AND FURNACES

By J. J. COSGROVE

IN order to bring out interesting points relative to water-tube boilers, we may select certain well known standard makes. For purposes of this discussion these will be called First Type, Second Type, etc., and special features of each will be pointed out. Architects wishing further details and manufacturers' names may communicate with the author through the office of THE ARCHITECTURAL FORUM. The selection of types mentioned is made at random.

Water Tube Boilers

First Type. A water-tube boiler of the cross-drum type as shown in Fig. 34. A cross-drum boiler differs from a longitudinal-drum boiler primarily in that the steam drum at the top is crosswise with the boiler instead of parallel with it. A marked difference between this and other types of water-tube boilers is in the headers used for a bank of tubes. Other water-tube boilers have either a drum or water-leg for a header. In this boiler a bank of tubes is connected to front and rear headers of wrought steel (Fig. 35) which are separate completely from the other tubes in the nest, so that one bank of tubes can be removed as a unit without disturbing the rest.

Instead of using vertical baffling, this or any other water-tube boiler can be horizontally baffled, so that the flames and hot gases will move along the bank of tubes, instead of crosswise, thereby setting up numerous eddies, reducing the draft and leaving "dead spots" where hottest flames and gases do not reach.

Second Type. A water-tube boiler as shown in Fig. 36. In this type of boiler drums are used instead

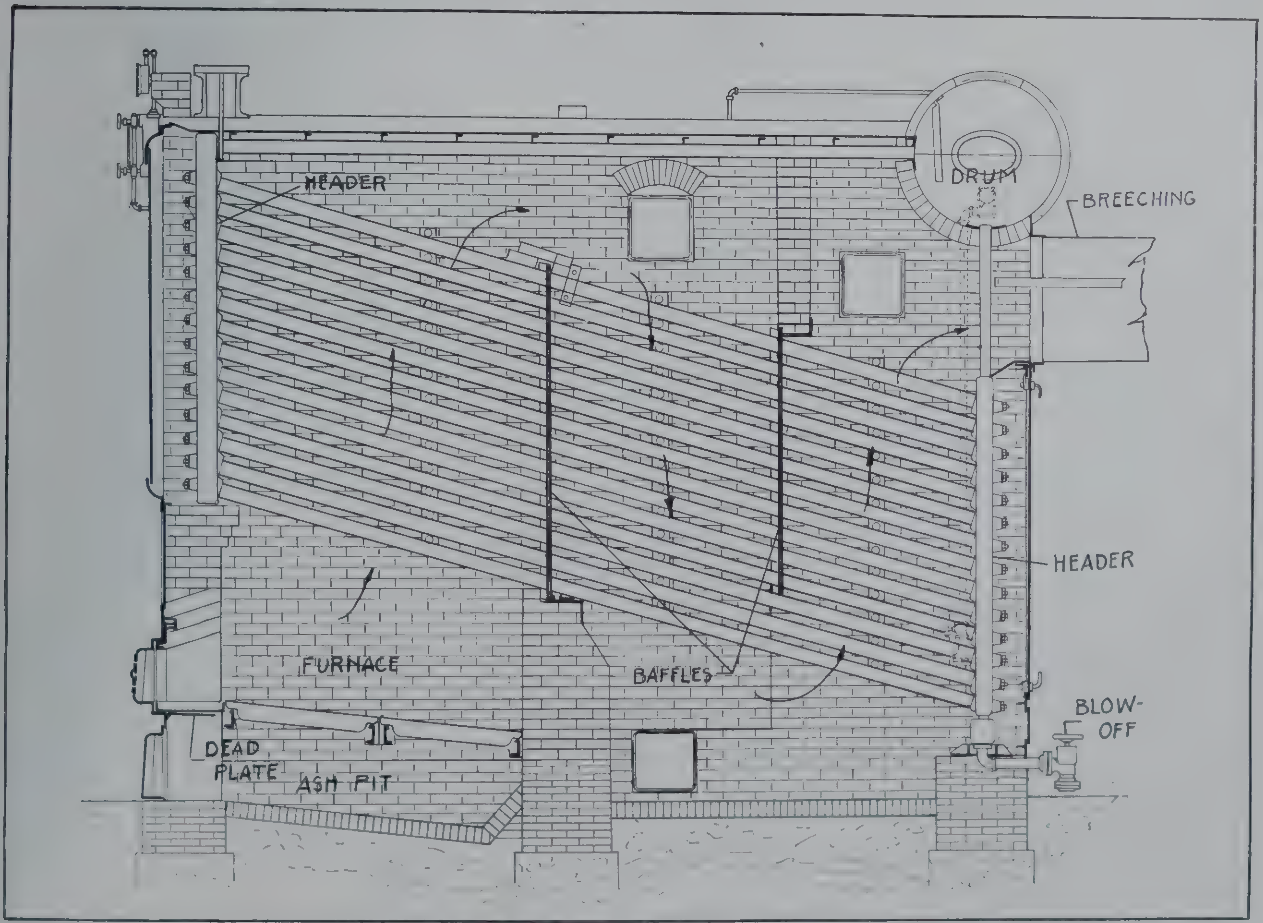


Fig. 34. Cross Drum Water Tube Boiler
First Type Discussed in Text

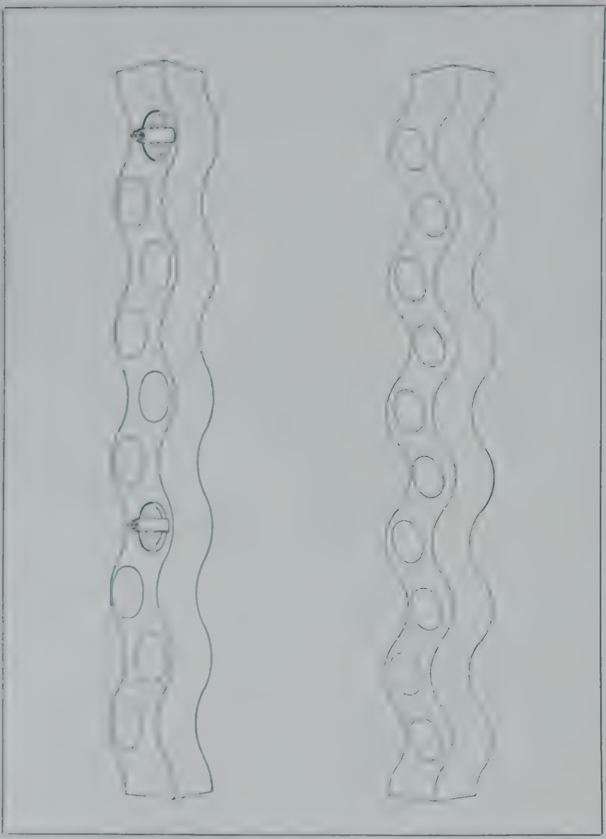


Fig. 35. Front and Rear Headers

of either water legs or headers. It is also a bent-tube boiler, in that the water tubes are curved to ease the stress from expansion and contraction. The baffling and direction taken by the flames and hot gases from furnace to breeching are clearly indicated by the arrows.

Third Type. This boiler as shown in Fig. 37 is a water-leg boiler, the water tubes connecting to water legs at front and rear. The drum is longitudinal. (All manufacturers of boilers make both the cross and longitudinal types.) This boiler is vertically baffled in what is known as the single-pass design,—that is, the gases pass only once forward and back from the combustion chamber before escaping up the stack. The lower baffle, directly over the firebox or furnace, it will be noticed, is *below* the lowest row of tubes. With a low setting this maintains a higher temperature in the furnace than would be possible if the lower course of tubes were exposed to the flames, and insures a quicker ignition.

Fourth Type. This type of boiler is shown in Fig. 38 and is unique in many ways. It is all furnace or combustion space, so that all of the heating surface is prime surface. It has no bridge wall or baffles, and the travel is direct from the firebox and combustion chamber straight up to the breeching.

Owing to the ease with which water-tube boilers can be repaired and parts replaced, their lives are longer than those of the horizontal tubular boilers.

Baffling Water Tube Boilers

Investigations by the Bureau of Mines show that: (1) A boiler whose heating surface is arranged to give long gas passage of small cross section will be more efficient than a boiler in which the gas passages are short and of large cross section. (2) The efficiency of a water-tube boiler increases as the free areas between individual tubes decrease, and as the lengths of the gas pass increase. (3) By inserting baffles, so that the heating surface is arranged in series with respect to the gas flow, the boiler efficiency will be increased. These results point to the desirability of using horizontal baffles.

In a series of tests on a vertically baffled boiler, using pyrometer measurements, only about 60 per cent of the surface was an active heat absorber, the remaining 40 per cent representing dead pockets. This can be seen by referring to Fig. 39, where the shaded portion represents the dead pockets and the

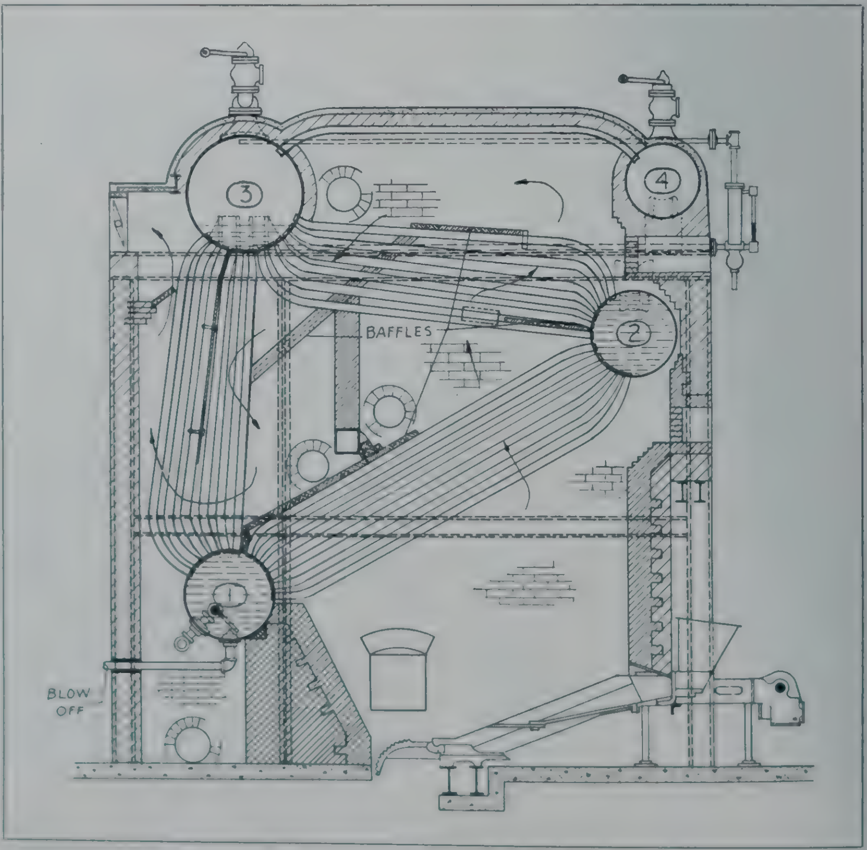


Fig. 36. Bent Tube Design Water Tube Boiler
Second Type Discussed in Text

unshaded portion the passage followed by the flames.

Third Type. Fig. 37 shows a single-pass horizontal baffle. When necessary, horizontal baffles can be arranged in water-tube boilers for single pass, double pass or triple pass. The horizontal three-pass baffling gives the highest evaporation, and the horizontal two-pass develops the highest horse power when burning high volatile coals. It is difficult to keep vertical baffles tight, and yet if they are not tight they allow the flames and hot gases to short circuit, resulting in high temperatures and lower efficiency.

Furnace Design

From an economic standpoint, the proper design and proportioning of the furnace are the most important considerations in securing high boiler efficiency. A single design and proportion of setting cannot be standardized to meet the various requirements of fuel, space and operation. To obtain complete combustion of the fuel used, different designs and proportions are required for high and low volatile coals, gas, fuel oil, sawdust, and pulverized coal for hand firing and for stoker firing, for forced draft and for natural draft, and for moderate or excessive consumption of coal per square foot of grate surface. The three essentials of combustion are: (1) Sufficient space for the mixing of air and gas. (2) High

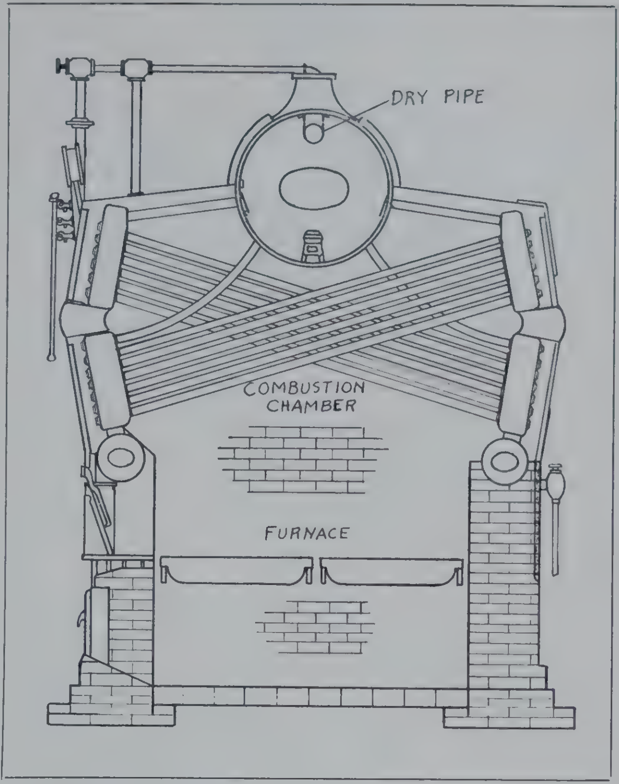


Fig. 38. Fourth Type Boiler Discussed in Text

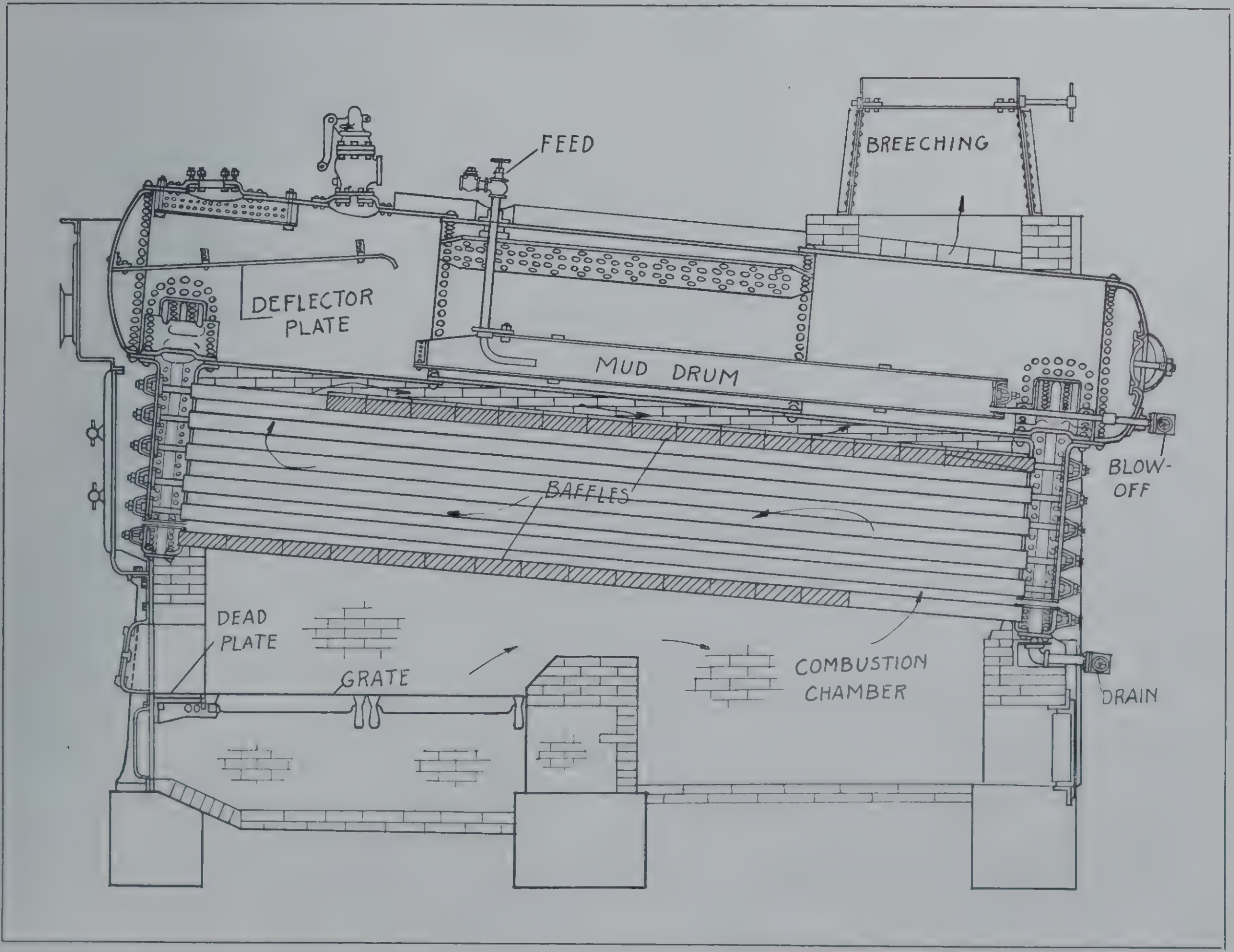


Fig. 37. Showing Baffles in Single Pass Design
Third Type Discussed in Text

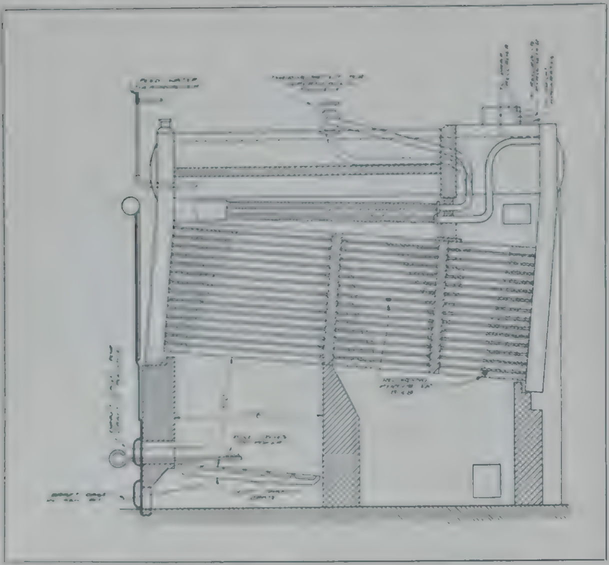


Fig. 39. Dead Pockets in Vertically Baffled Boiler

temperature to ignite the mixture. (3) Time for the mixture to burn before reaching the breeching outlet.

Furnace Volume. The area of a boiler setting being determined by the size of the boiler, any increase of furnace volume (outside of the Dutch-oven type) must be gained by increasing the height of the boiler above the grates. The distances of heating surface above grates for hard coal range from 18 to 20 inches, it is found, in general practice.

The combustion space required for a boiler, and the height of setting, will depend upon the kind of fuel to be used and the maximum amount of fuel to be burned per square foot of grate surface. Small heating boilers in residences burn from 2 to 3 pounds of coal per hour per square foot of grate surface. Power boilers, hand stoked, will range from 15 to 20 pounds of coal per hour per square foot of grate surface, while mechanical stokers will burn from 25 to 65 pounds of coal per square foot of grate surface.

Theoretically, each pound of coal requires 12 pounds of air for its combustion. On account of stratification of air and gases, the large amount of nitrogen in the air, variations in fuel, and mechanical interference of ash and clinker, about 50 per cent more than the theoretical amount of air must be supplied. But about 75 per cent of all settings leak, so that from 40 to 50 per cent of excess air finds its way into the boilers from this source.

The results of several tests which were conducted by the Bureau of Mines, using coals of different composition, with 50 per cent of excess air, can be seen in the chart Fig. 40, which is included here.

Height of Boiler for Smokeless Setting. The best heights for horizontal return-tubular boilers to insure smokeless operation when hand fired, can be found in Table V, which is included immediately below.

TABLE V

Height of Horizontal Tubular Boiler Settings

Diameter of Boiler, Inches	42	48	54	60	66	72	78	84
Distance from Dead Plate to Under Side of Boiler, Inches	28	30	32	34	34	36	38	38

The height of setting for hand-fired, water-tube boilers, and for both water-tube and horizontal tubular boilers operated with different types of grates and stokers, can be found in Table VI. These are for the smokeless combustion of soft coal under average conditions. All the dimensions are in inches.

TABLE VI

Heights of Smokeless Boiler Settings, Shell to Floor

Kind of Furnace Grate or Stoker	Horizontal Return Tubular				Water Tube				Continental or Scotch Marine
	Diameter in Inches				Baffles				
	54	60	66	72	Hor. 1½" pitch	Vert. 1½" pitch	Hor. ¾" pitch	Vert. ¾" pitch	
Hand Fired									
Down-draft....	60	60	60	60	72	*	78	*	*
McMillan.....	52	54	60	60	72	*	78	*	**
Twin-fire......	58	60	62	64	72	*	78	*	*
Semi-extension refuse-burning	†	†	†	†	84	*	90	*	*
Gravity Feed									
Burke........	48	48	50	54	60	*	66	*	Full Extension
McMillan.....	48	48	50	54	60	*	66	*	“ “
Front Feed									
Chain Grate...	72	72	78	78	84	114	96	120	**
Moore........	48	54	60	60	72	120	78	106	**
Roney........	60	60	60	72	84	108	90	120	**
20th Century..	54	60	66	72	84	108	90	120	**
Side Feed									
Detroit........	66	72	78	84	90	*	96	*	Full Extension
Model........	66	72	78	84	90	*	96	*	“ “
McKenzie.....	66	70	70	70	90	*	96	*	“ “
Murphy.......	66	72	78	84	90	*	96	*	“ “
Under Feed, from Shell to Dead Plate									
American.....	42	42	42	42	78	96	84	102	**
Jones.........	36	38	40	42	78	96	84	102	Min. Diam. of Furnace 36 ins.
Taylor........	**	**	**	**	84	102	90	108	**
Westinghouse..	**	**	**	**	84	102	90	108	**

*Combination not recommended as smokeless setting.
**Combination not ordinarily met with in practice.
†Applied only to water-tube boilers.
(Table after O. Monnett.)

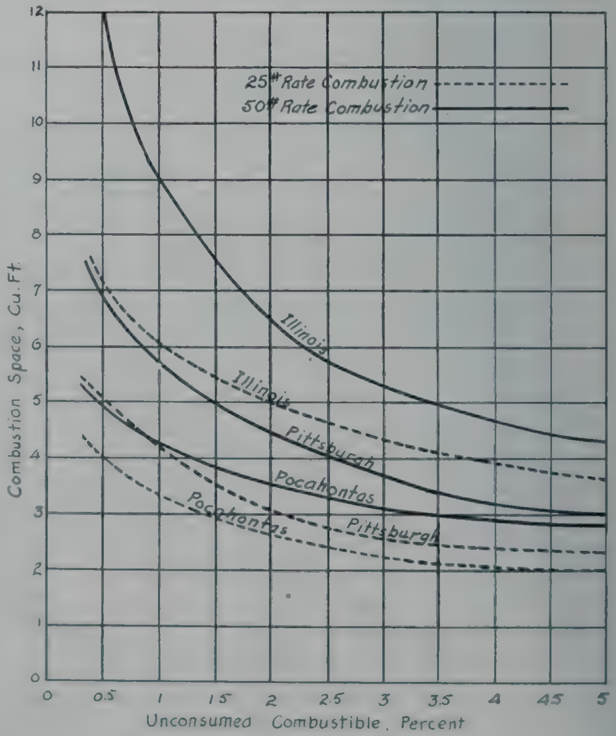


Fig. 40. Bureau of Mines Tests of Mechanical Stokers

This chart shows the cubic space required when burning three well known varieties of steam coal at two different rates of combustion. The dotted lines indicate a rate of 25 pounds of coal per hour per square foot of grate surface; the solid lines indicate a rate of 50 pounds of coal per hour per square foot of grate surface. Outside of the Illinois coal, burning at the highest rate, the results call for spaces in the combustion chamber of from 4.5 to 7.5 cubic feet, or an average of about 6 cubic feet per square foot of grate surface.

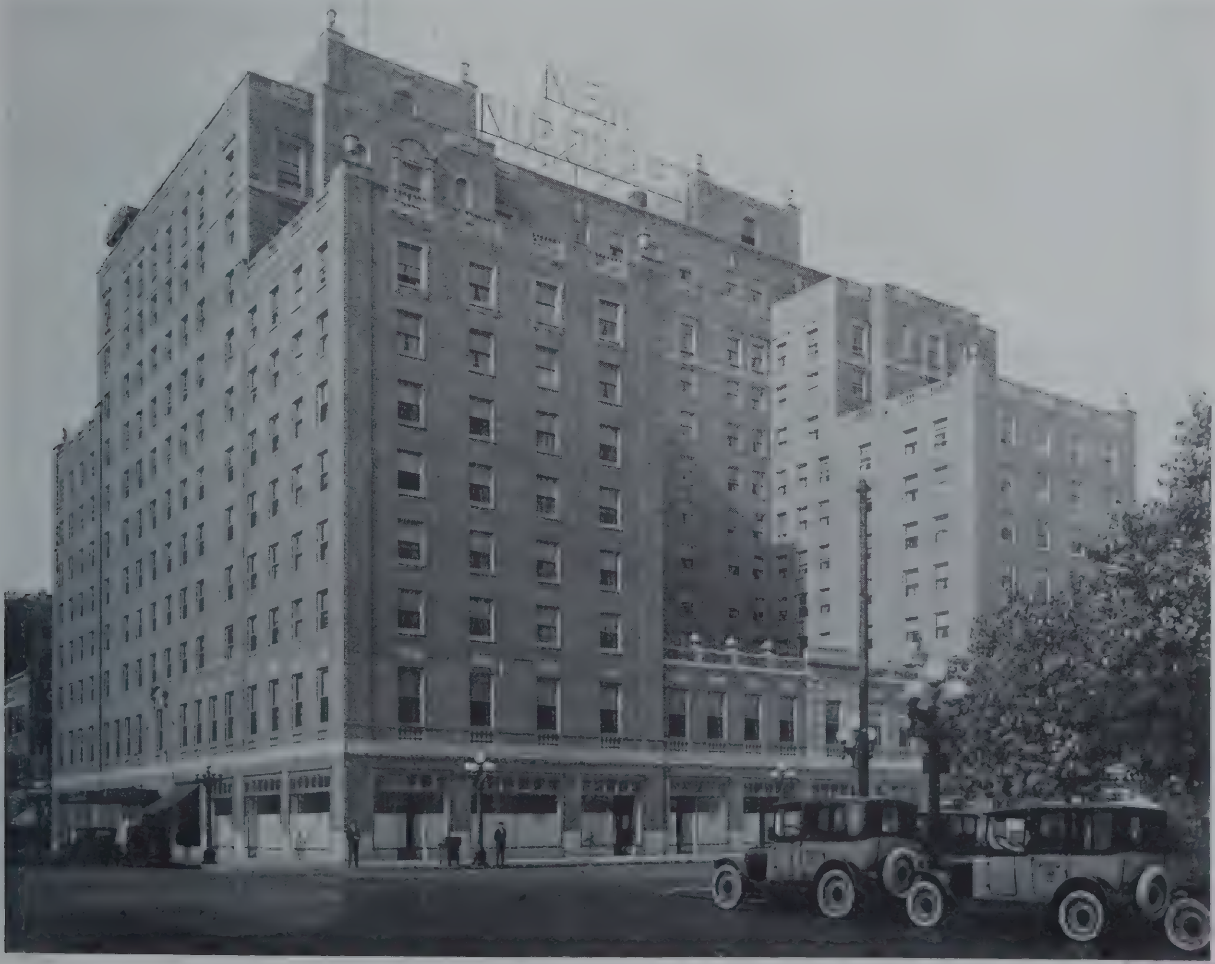
The New Nicollet Hotel, Minneapolis

HOLABIRD & ROCHE, Architects

IN response to a long felt need in Minneapolis, the Nicollet Hotel has been rebuilt. The project was sponsored by the Minneapolis Civic and Commerce Association, a group of progressive men who realized the necessity of creating adequate hotel accommodations for the rapid development of business and industry in the city. The site of the old Nicollet House, a landmark of Minneapolis for the last 67 years, was chosen for the new hotel. This location could not have been bettered. It is convenient to the industrial and wholesale areas of the city, adjoins the fashionable shopping district, and is within three blocks of both the railroad stations. Moreover, this site commands a view over Gateway Park; it is a wedge-shaped area, formed by the junction of Nicollet and Hennepin Avenues, the two principal thoroughfares of Minneapolis, and an excellent setting is thus provided for the building, one of the most prominent in Minneapolis.

The structure is 12 stories in height and contains, in addition to its public rooms, about 600 guest rooms, 12 of which are also sample rooms. All of the street frontage is reserved for shops, etc., with the exception of the spaces used for the two entrances to the hotel. The architects have seized the opportunities offered by the splendid setting and have erected an imposing monument in the style of the English Renaissance. Conforming to the trend of the times, they have relied for interest upon silhouette and mass rather than upon extensive use of ornament. The exterior of reddish brick with terra cotta trim has been kept simple almost to the point of severity. Use of costly architectural detail has been minimized to allow for the extra expense incurred in creating a building which is complete from all sides. Although Minneapolis has not yet adopted the zoning setback regulation in vogue in New York, the architects deemed it advisable to be a step in advance of the time, and have accordingly planned setbacks on Washington Avenue and on the alley side, as well as a shallow light court on the Hennepin Avenue front, thus affording light and air.

This same note of simplicity and refinement is dominant in the interior architecture and decoration of the hotel. The wide promenade that stretches the length of the block between the Nicollet and the



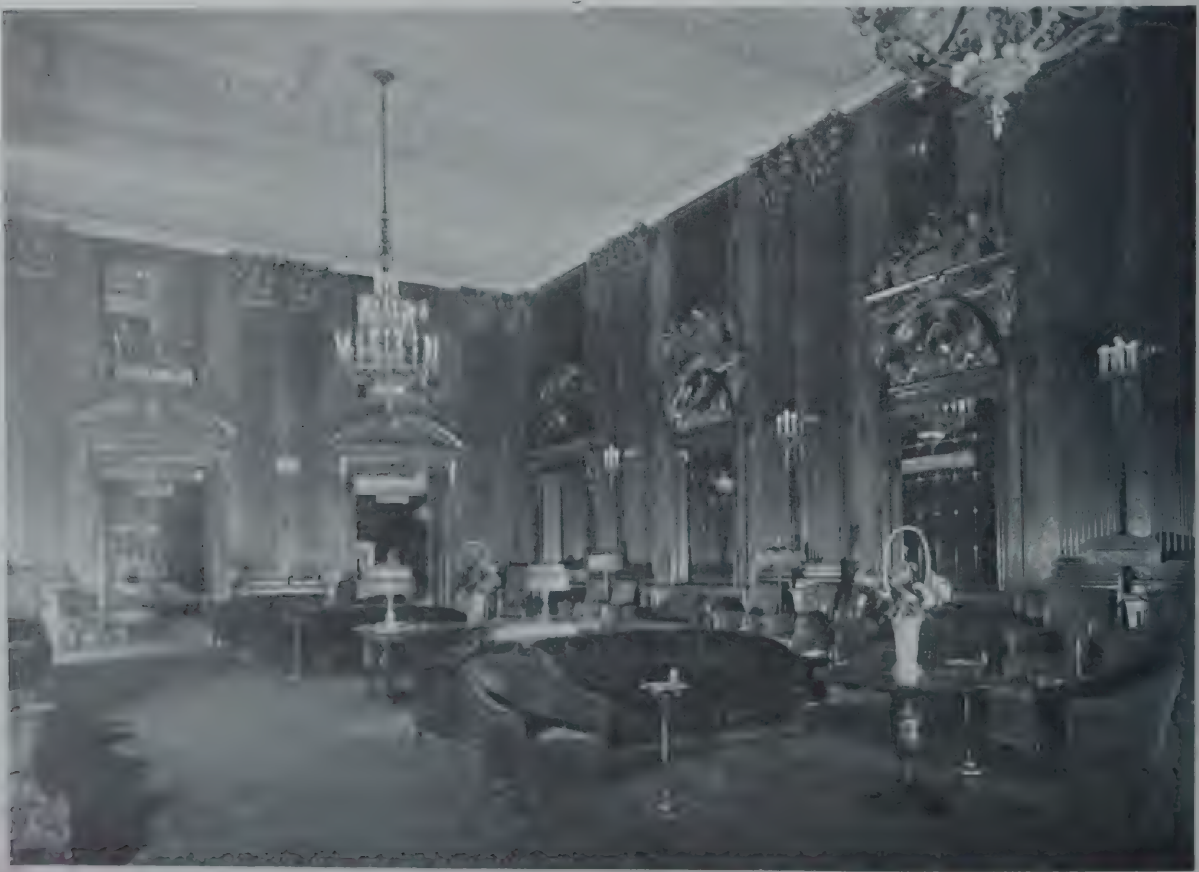
The New Nicollet Hotel from Washington Avenue

Hennepin Avenue entrances is paneled in walnut, as is also the elevator lobby, and the rich furniture coverings lend color to the whole. Centrally located in the building, and opening from this promenade, is the main lobby, a commodious room of excellent proportions, two stories in height. The walls and pilasters are of specially selected walnut rubbed with wax, and the bases of the pilasters are of burl walnut. The floor is of a native marble bordered with a verde antique band. Moulded plaster is an antique ivory tone forms the ceiling, from which hang two large lighting fixtures, the rest of the illumination coming from nine bracket lights on the walls.

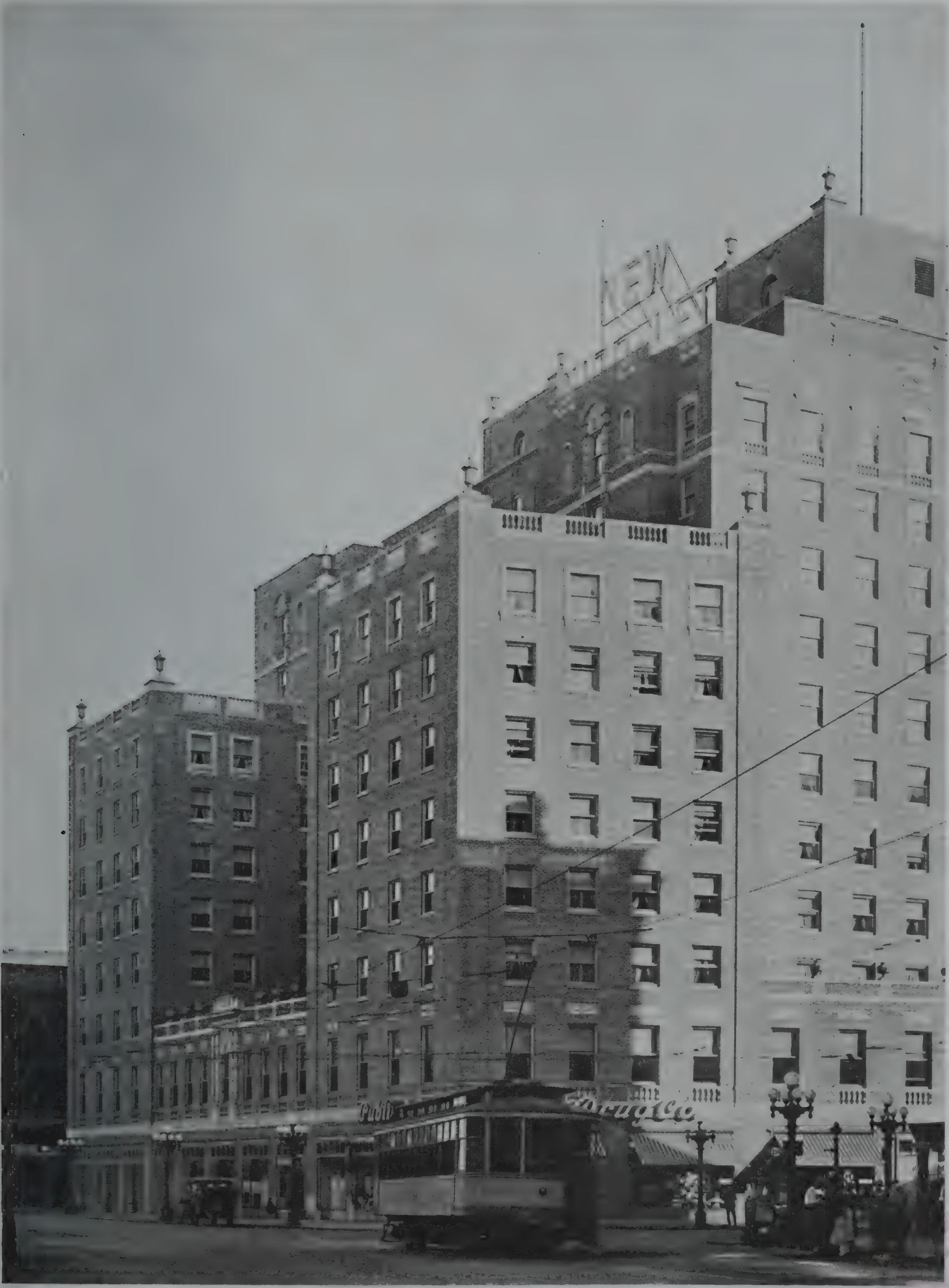
Across the promenade from the lobby is an *entre salle,* also paneled in walnut, which opens into the main dining room. The walls of this room are of an Elizabethan oak design, developed in plaster and so decorated as to faithfully reproduce the color and texture of wax-finished white oak. A narrow frieze between the wall panels and the ceiling adds richness by simulating the characteristic inlay work of the period in ebony and pearwood. The ceiling tone is a rich old ivory, and a particularly fine design of the period has been developed in moulded plaster. On the ground floor are also the quarters of the Traffic Club, its billiard and conference rooms being below in the basement, reached by a private stairway.

Located directly above the dining room on the second floor is the magnificent ball room, measuring 180 by 52 feet, with its accompanying promenade and assembly rooms. This serves as both ball and banquet room, and can accommodate about one thousand people. Folding doors of walnut are arranged to shut off the two ends of the great room when desired, and three separate rooms can thus be created. The ball room is designed in the Georgian style, having rich plaster ornament. The mezzanine writing room and lounge on this floor are developed in tones of old ivory to harmonize with the lobby which it overlooks. The remainder of this floor is devoted to three large private dining rooms, charmingly decorated, quarters for the Old Colony Club, 12 sample rooms and a "beauty parlor." The sample rooms are fitted with concealed beds and all the newest features for display of samples. From the hotel's roof garden a view over the city is had.

Ventilation is provided for all dining rooms, lobbies and special rooms by supplies of washed and tempered air, together with positive exhaust of all vitiated air through the highest point of the roof. The hotel is built of skeleton concrete construction. The floors are of solid concrete slabs, spanning the widths of the rooms for the most part, with beams located on the partition lines. In the bays which form the bathrooms, closets, etc., two-way slabs have been used, with beams on the center lines of columns. The foundations are in general spread footings, bearing on sand. A few of the column footings around the boiler room extend through the overlying sand and bear down upon the solid rock.



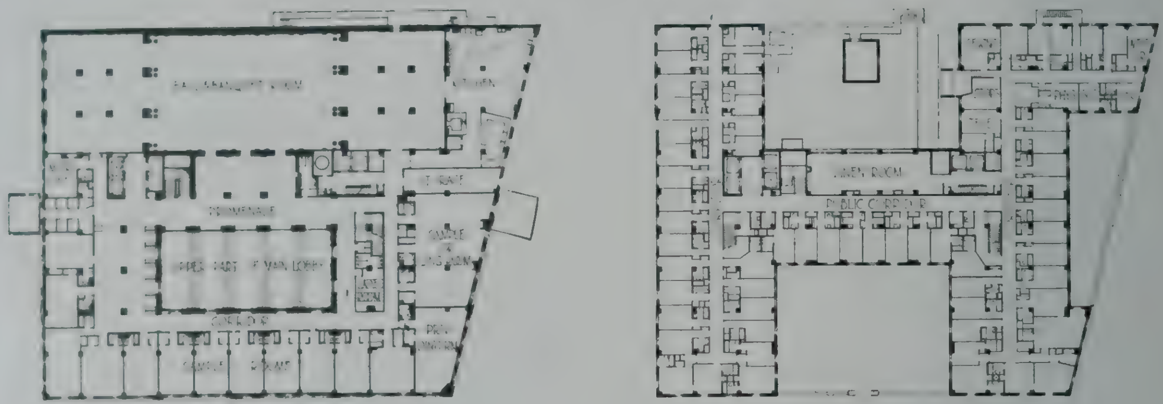
Main Lobby, New Nicollet Hotel, Minneapolis
Holabird & Roche, Architects



Photos. Trowbridge

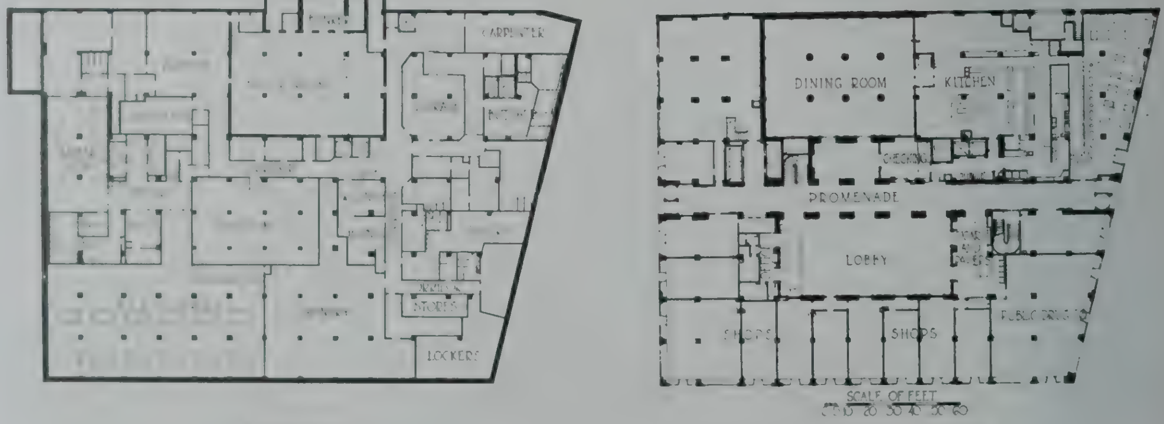
Plans on Back

THE NEW NICOLLET HOTEL, MINNEAPOLIS
HOLABIRD & ROCHE, ARCHITECTS



SECOND FLOOR

THIRD FLOOR

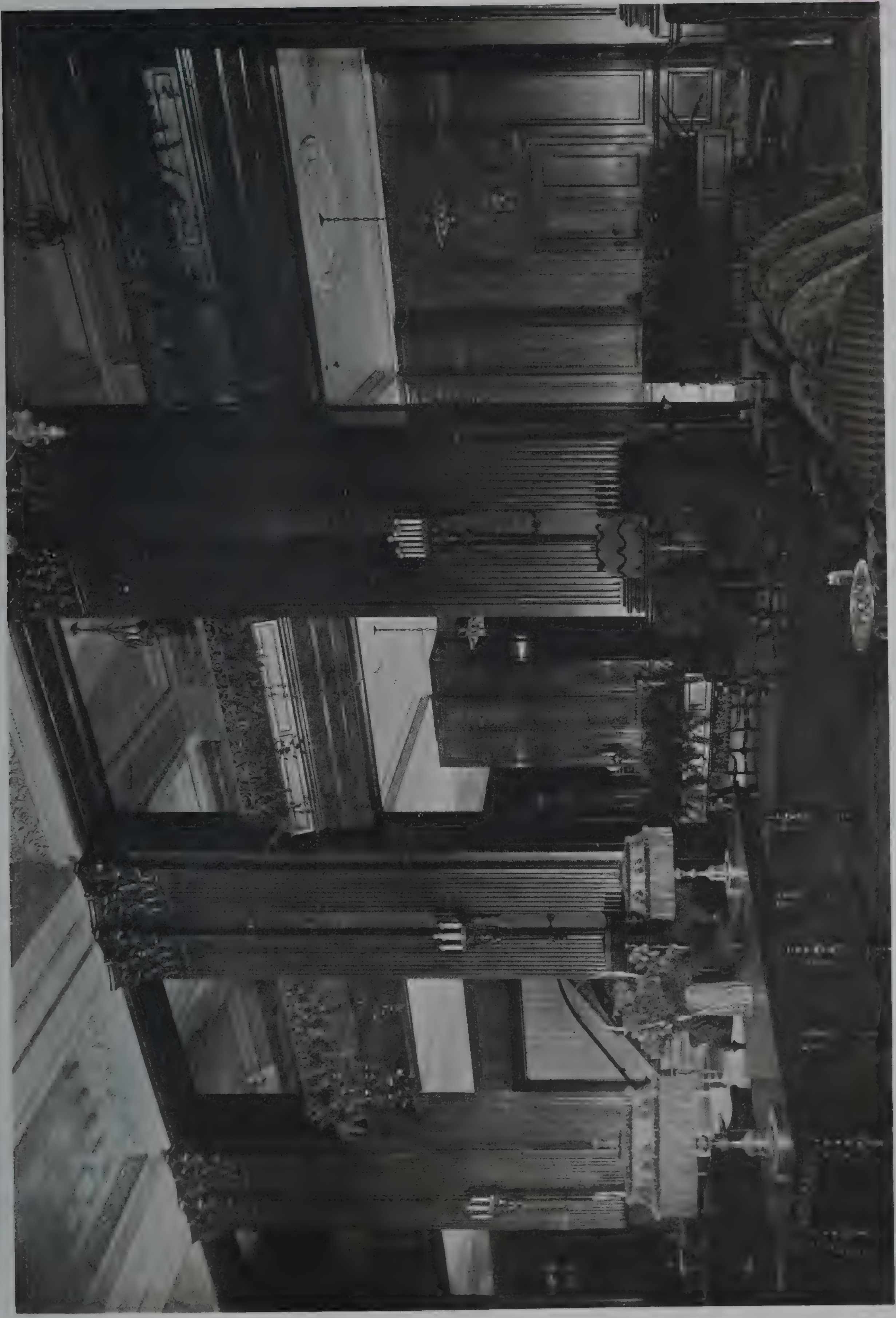


BASEMENT

FIRST FLOOR

PLANS, THE NEW NICOLLET HOTEL, MINNEAPOLIS

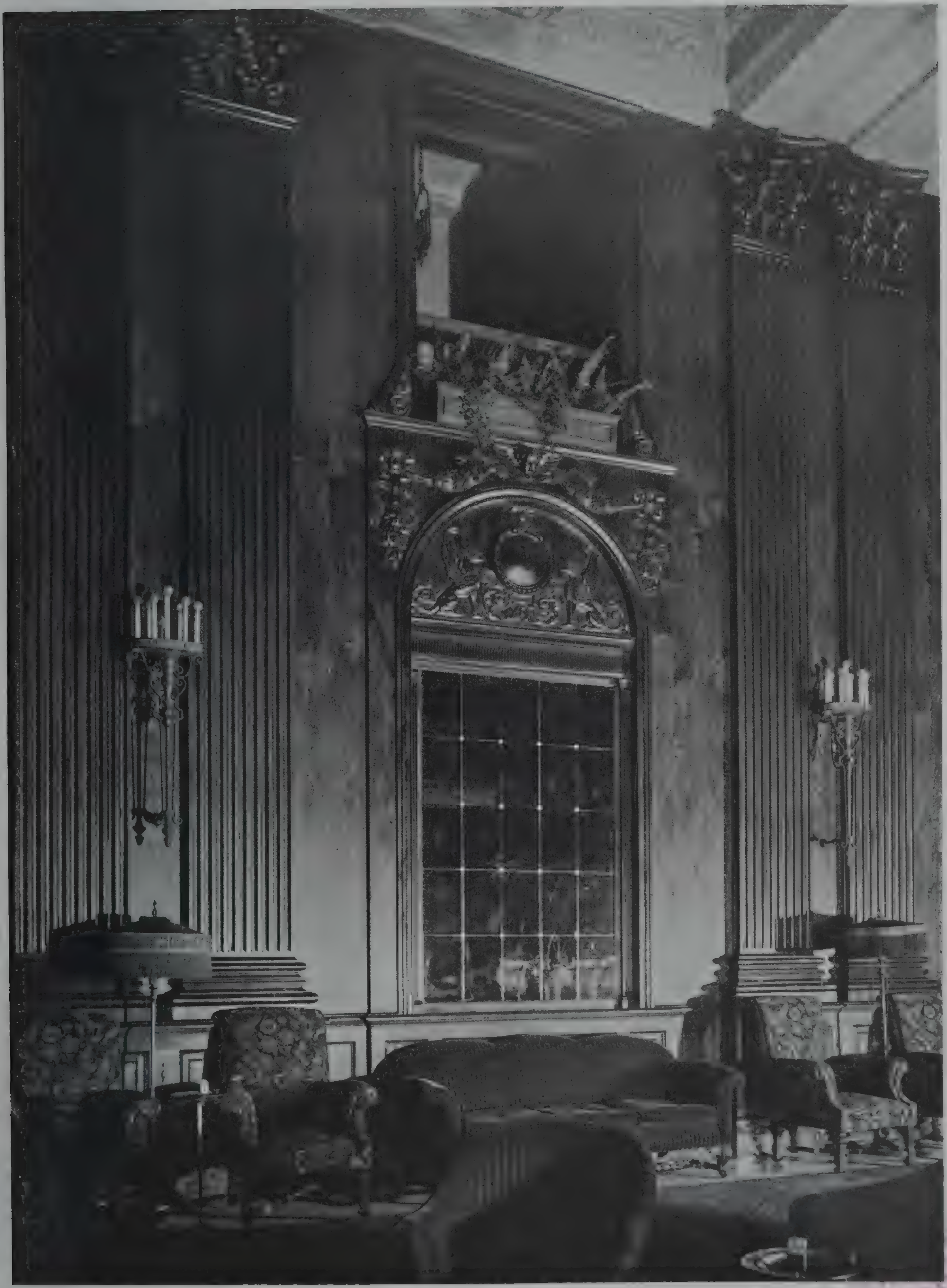
HOLABIRD & ROCHE, ARCHITECTS



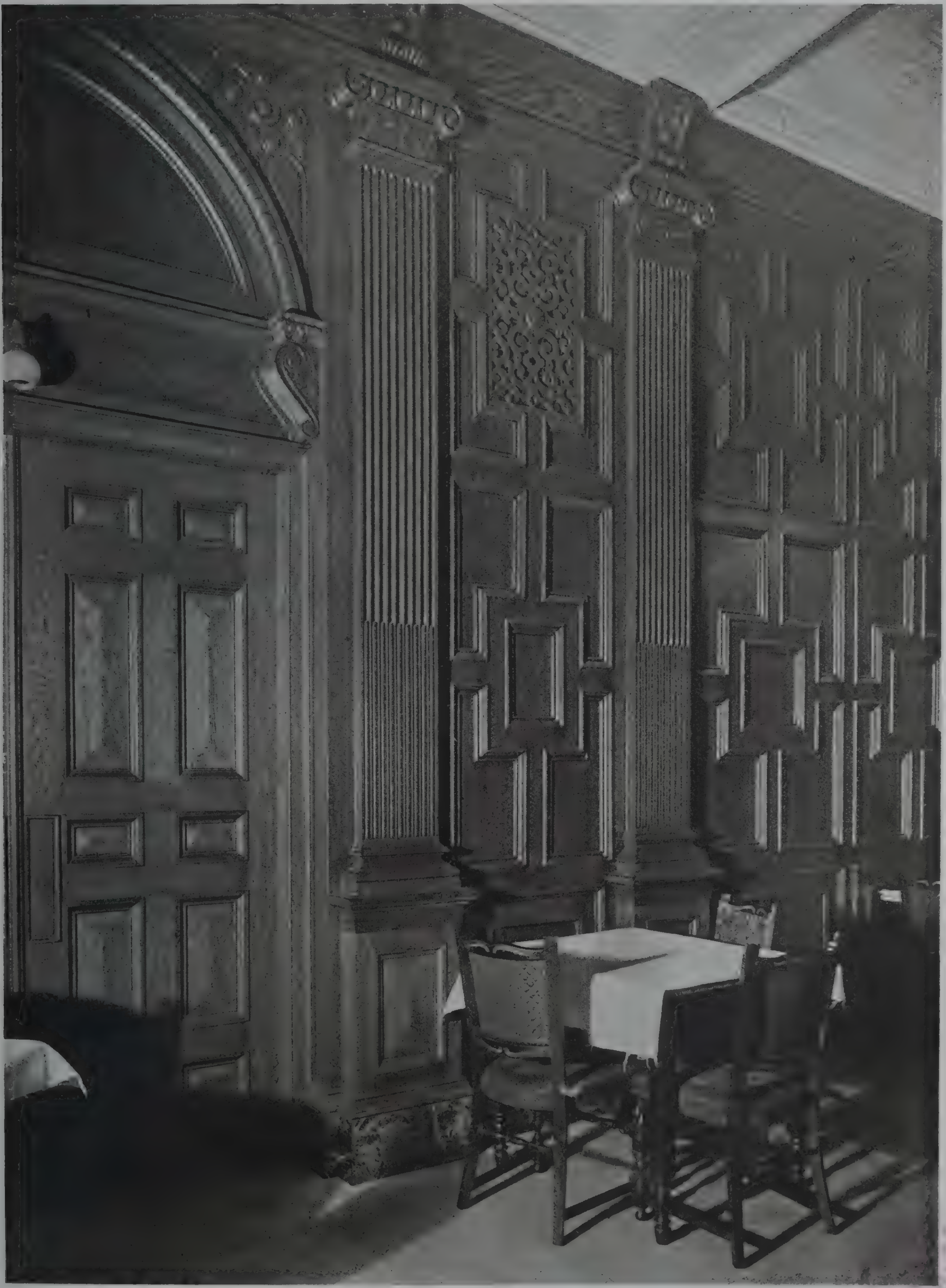
LOBBY AND PROMENADE

THE NEW NICOLLET HOTEL, MINNEAPOLIS

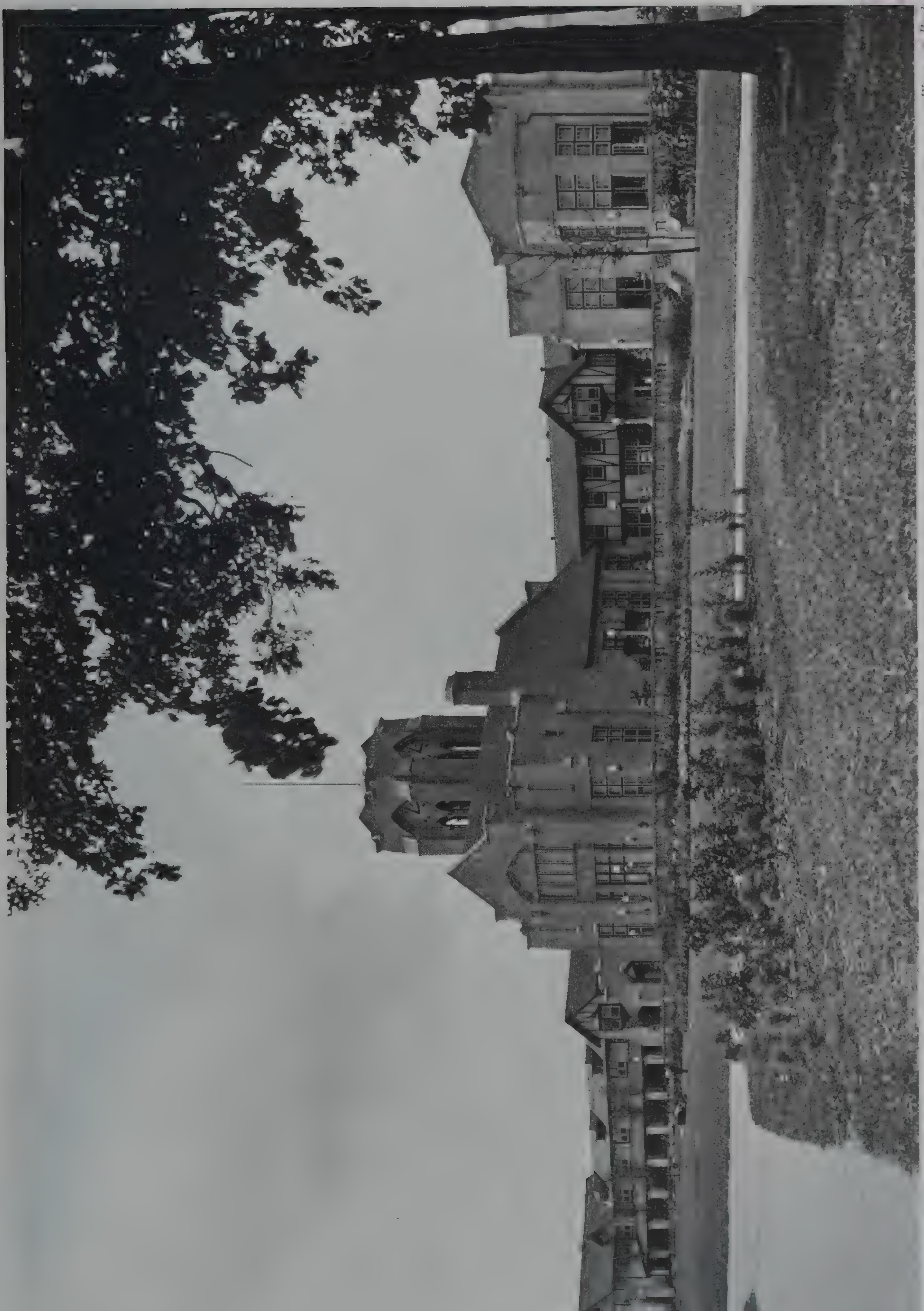
HOLABIRD & ROCHE, ARCHITECTS



DETAIL, MAIN LOBBY
THE NEW NICOLLET HOTEL, MINNEAPOLIS
HOLABIRD & ROCHE, ARCHITECTS

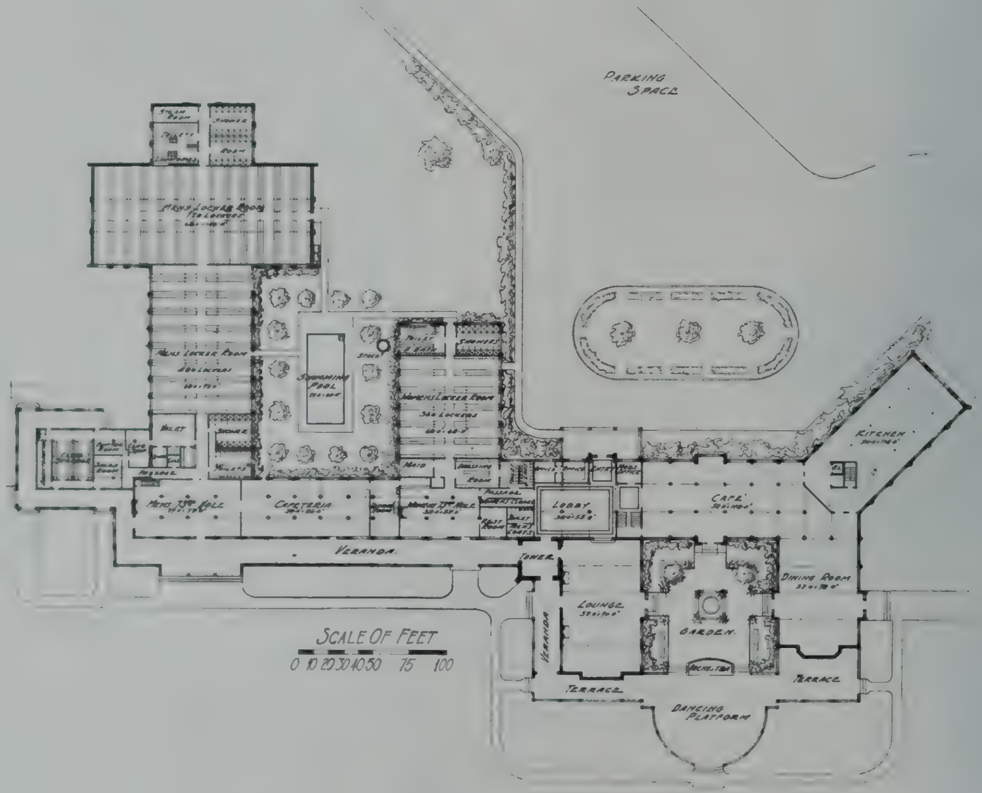


DETAIL, MAIN DINING ROOM
THE NEW NICOLLET HOTEL, MINNEAPOLIS
HOLABIRD & ROCHE, ARCHITECTS



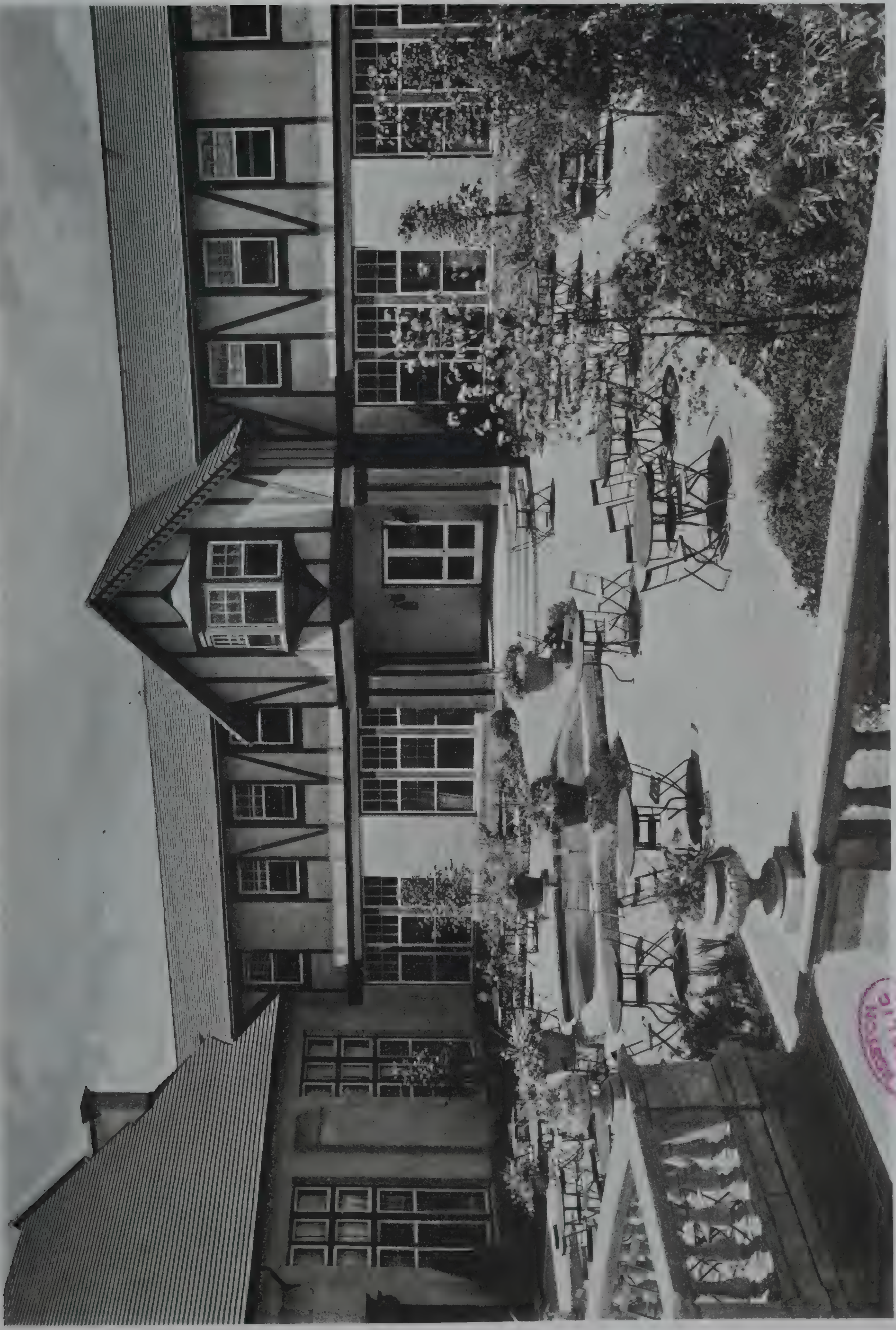
Plans on Back

OLYMPIA FIELDS COUNTRY CLUB, OLYMPIA FIELDS, ILL.
GEORGE C. NIMMONS & COMPANY, ARCHITECTS



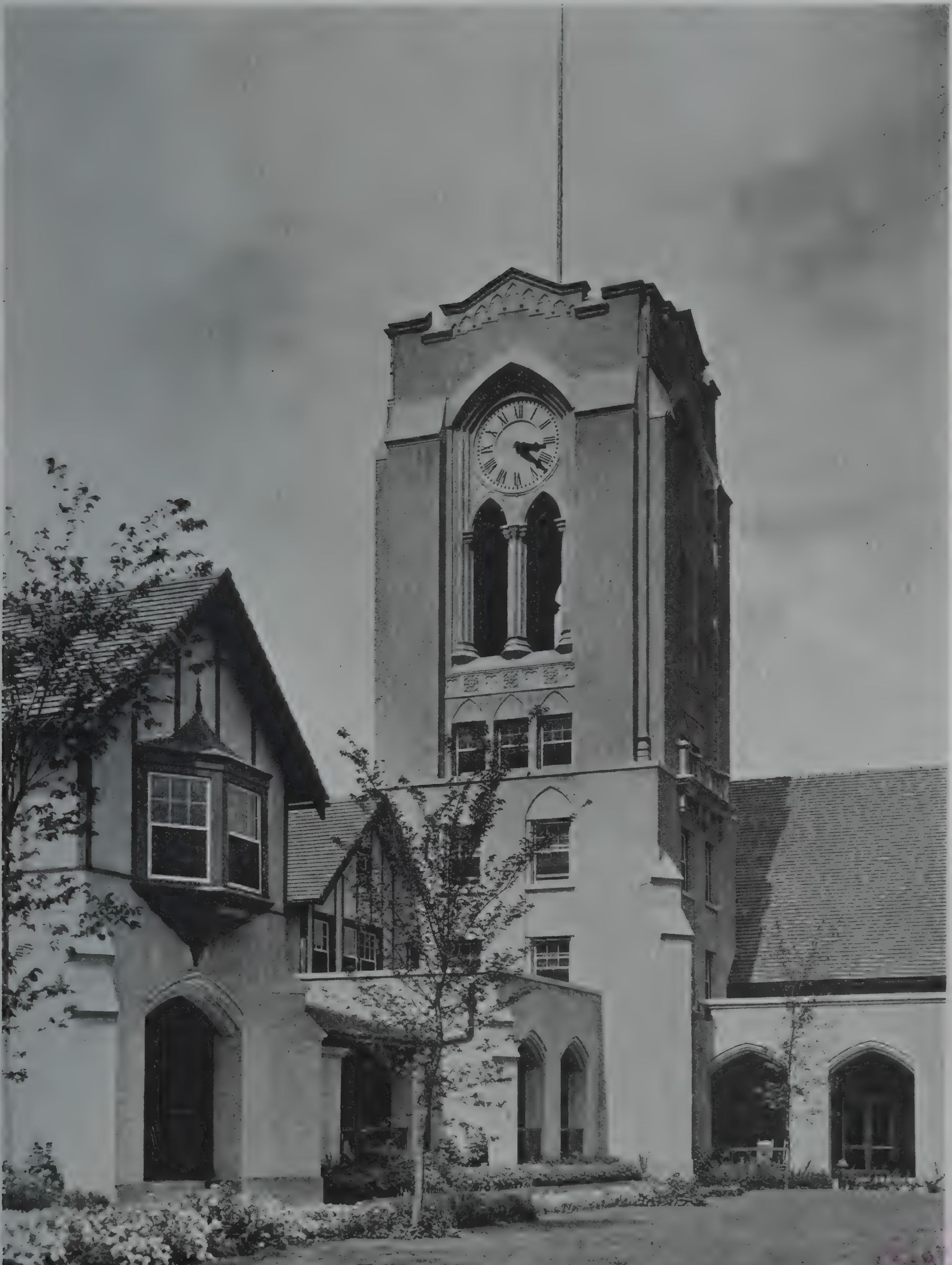
PLAN, OLYMPIA FIELDS COUNTRY CLUB, OLYMPIA FIELDS, ILL.

GEORGE C. NIMMONS & COMPANY, ARCHITECTS



GARDEN AND CAFE
OLYMPIA FIELDS COUNTRY CLUB, OLYMPIA FIELDS, ILL.
GEORGE C. NIMMONS & COMPANY, ARCHITECTS

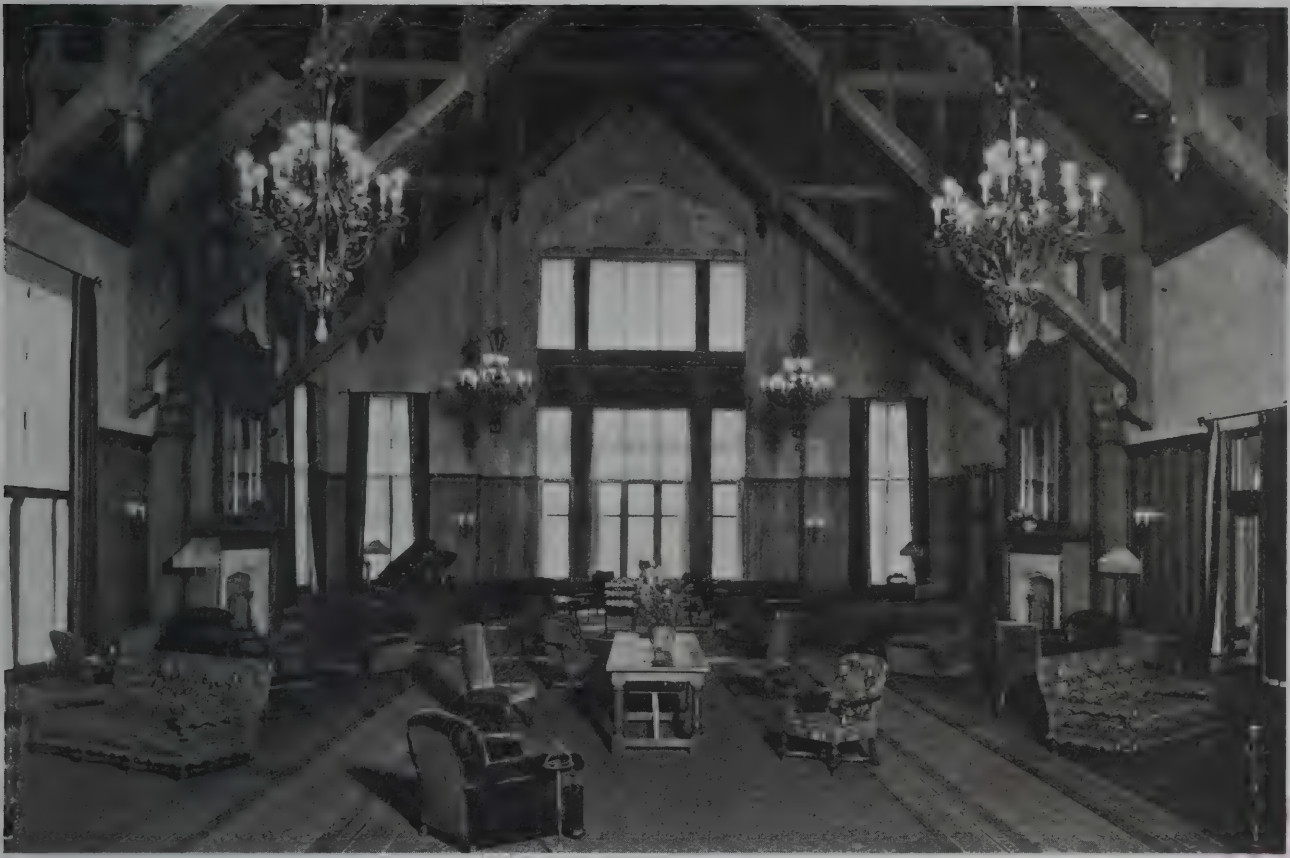
BOSTON PUBLIC LIBRARY



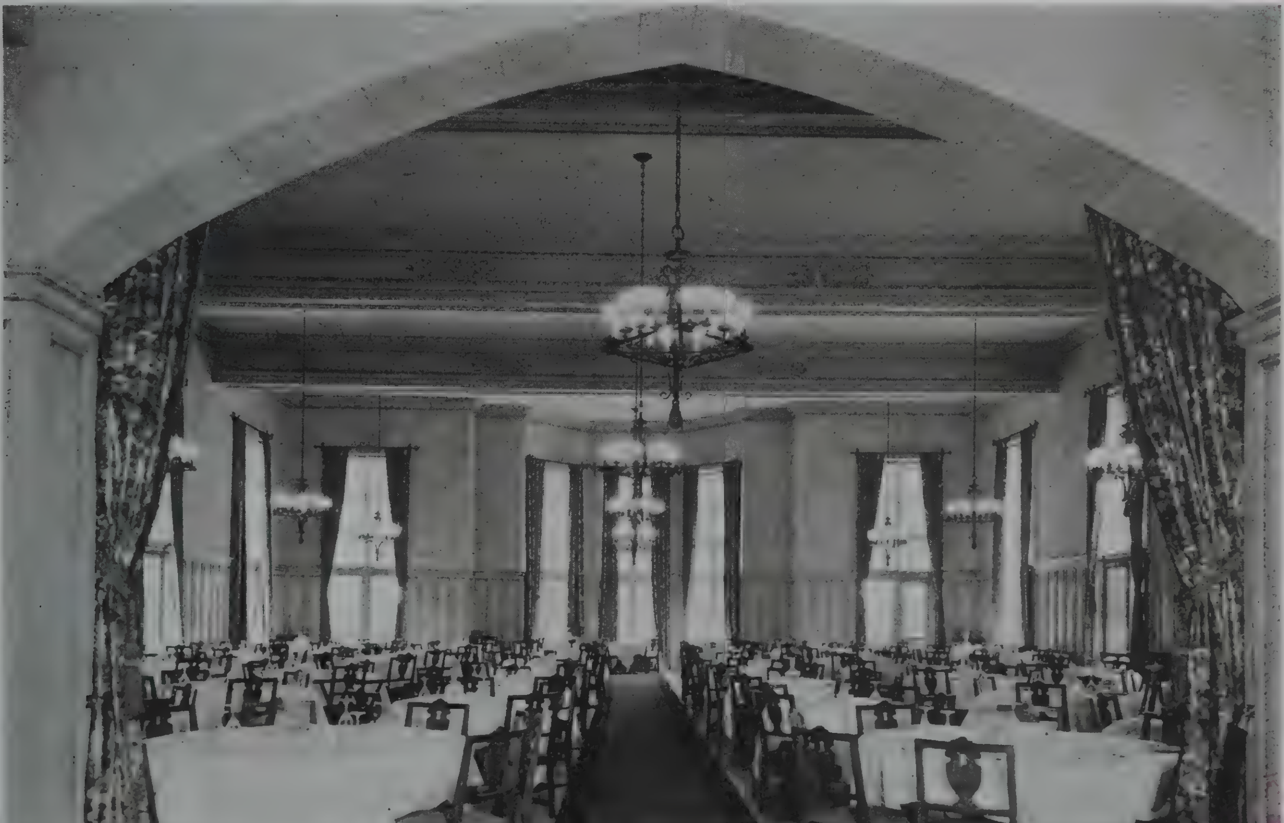
WATER TOWER

OLYMPIA FIELDS COUNTRY CLUB, OLYMPIA FIELDS, ILL.

GEORGE C. NIMMONS & COMPANY, ARCHITECTS



THE GREAT HALL OR LOUNGE



MAIN DINING HALL

OLYMPIA FIELDS COUNTRY CLUB, OLYMPIA FIELDS, ILL.

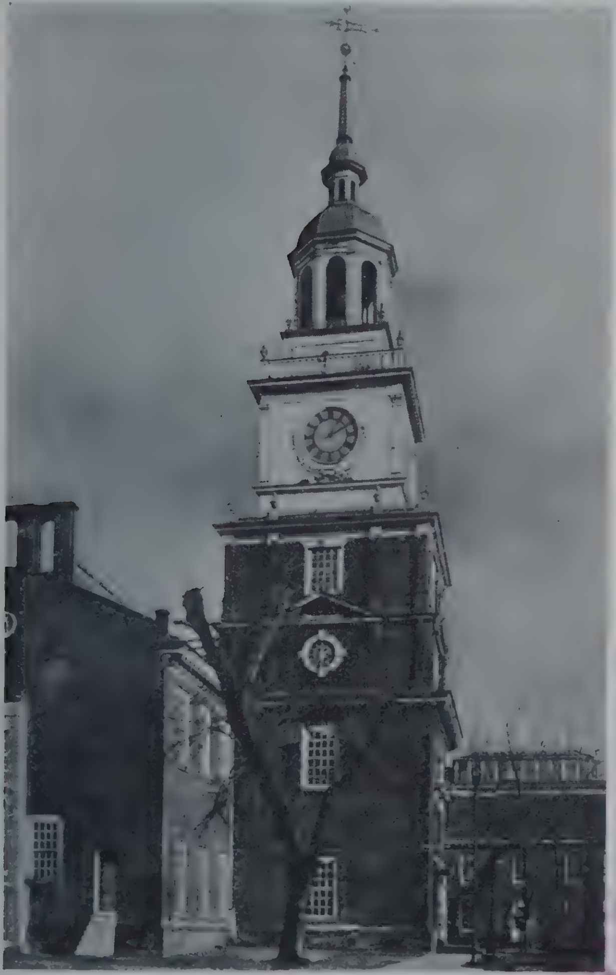
GEORGE C. NIMMONS & COMPANY, ARCHITECTS

The Small Town Hall

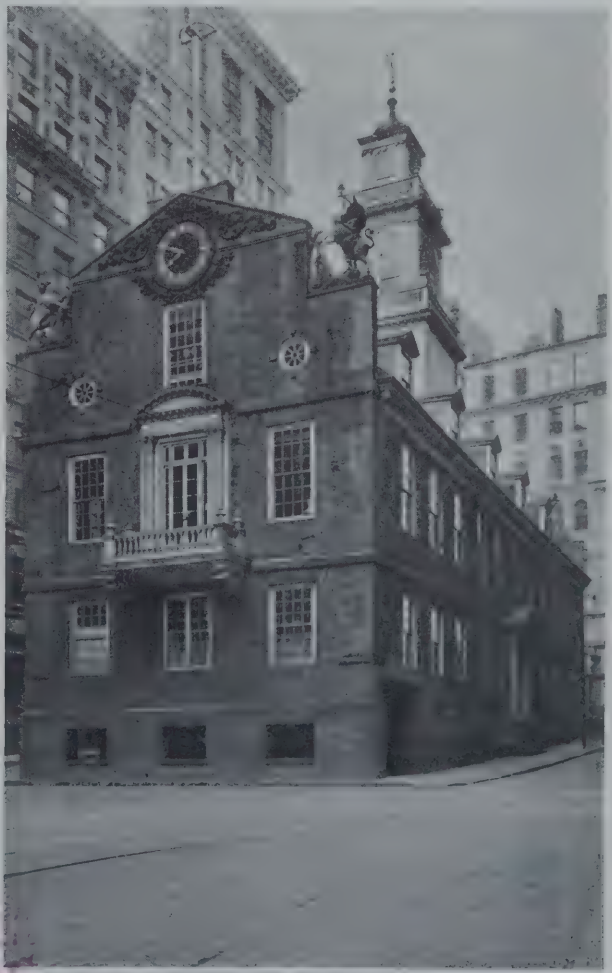
By CHARLES G. LORING

ALONG Main Street there is a sign over the leading dry goods emporium, which reads "Town Offices;" or maybe the fountain-head of government is reached through the side door of the fire engine house, where in a dingy suite of rooms upstairs presides the Town Clerk in his shirt sleeves! The next township, perhaps, has a Civil War relic for its Town Hall,—Victorian-Gothic outside and a wood-sheathed firetrap within. So much for Type One! In brilliant contrast stand the leading examples of a century or more ago,—Independence Hall in Philadelphia, the Old State House in Boston, and the City Hall in New York, and those structures of today which have been inspired by them. For the very reason that our town governments are based on precedents, the use of well established local forms of architecture is particularly appropriate. Even if there is a "Town Manager" or a "Commission" rule, there is no obvious need of designing the new structure as an Italian villa, or of going to the other extreme and making it resemble a factory office!

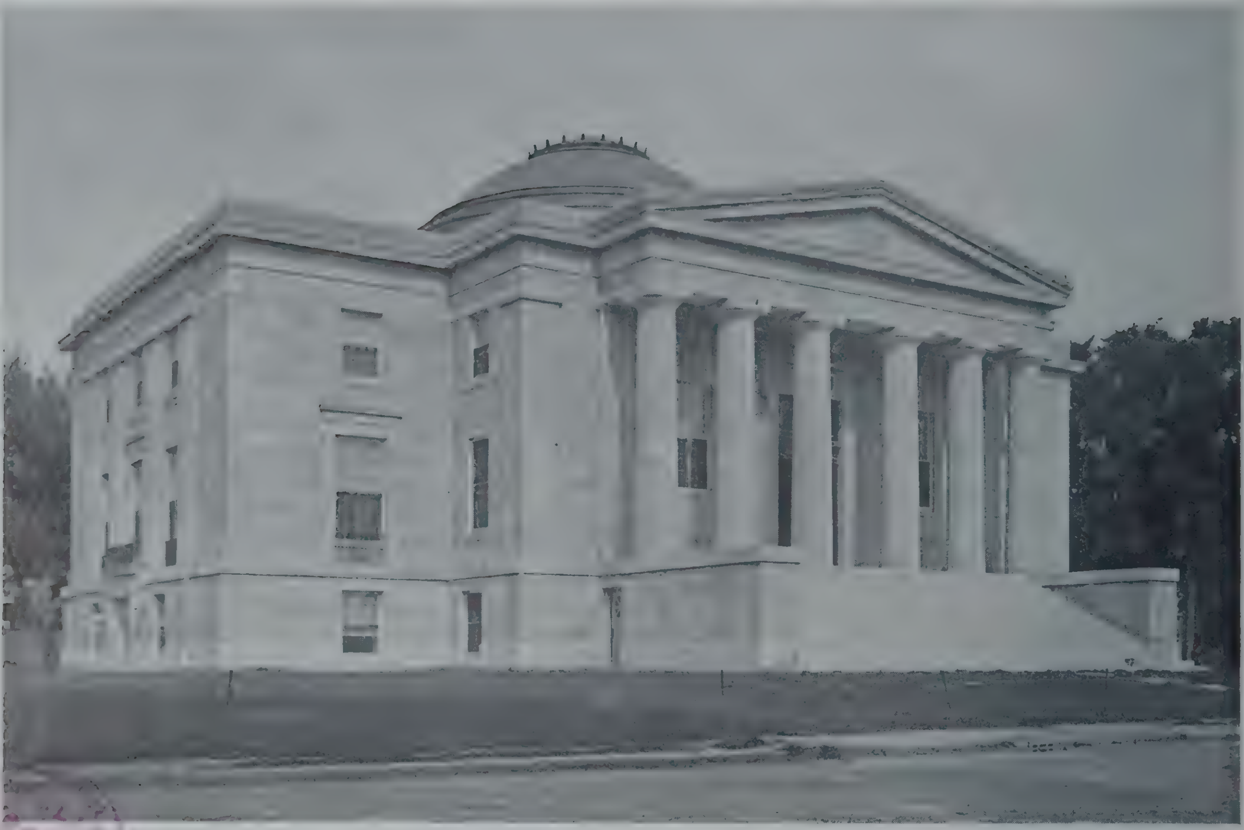
The "Old State House" was built as a Town House in 1713, and was so occupied until appropriated for the use also of the province, and then after the Revolution for the state. At that time the gilded lion and unicorn of Great Britain were torn from their positions on the main gable, but they have since been replaced to visualize history and to add to the gayety of the skyline. When the Bulfinch State House was erected on Beacon Hill, in 1798, its pred-



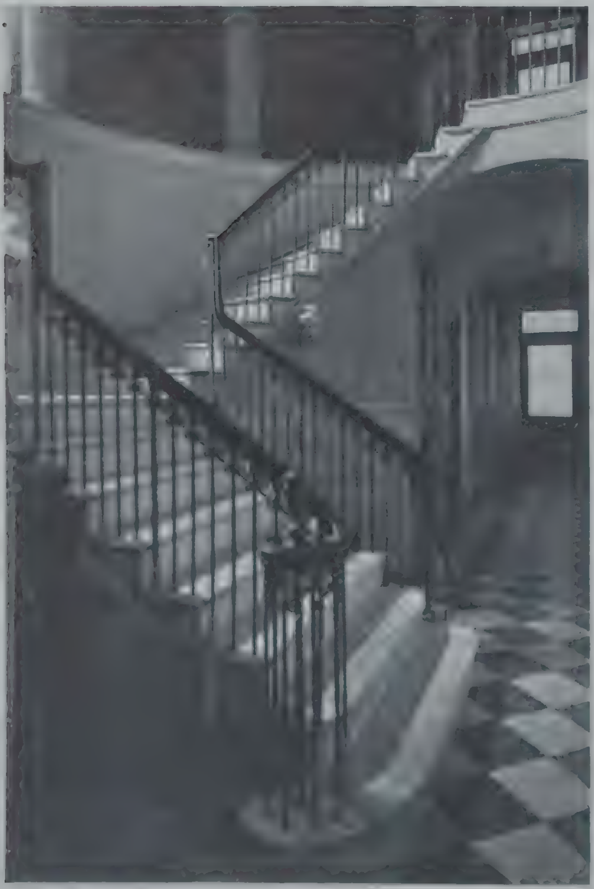
Independence Hall, Once the Town Hall, Philadelphia



Old State House, Originally the Town House, Boston



Town Hall, Plattsburg, N. Y.
John Russell Pope, Architect



Detail, Town Hall, Chester, Pa.

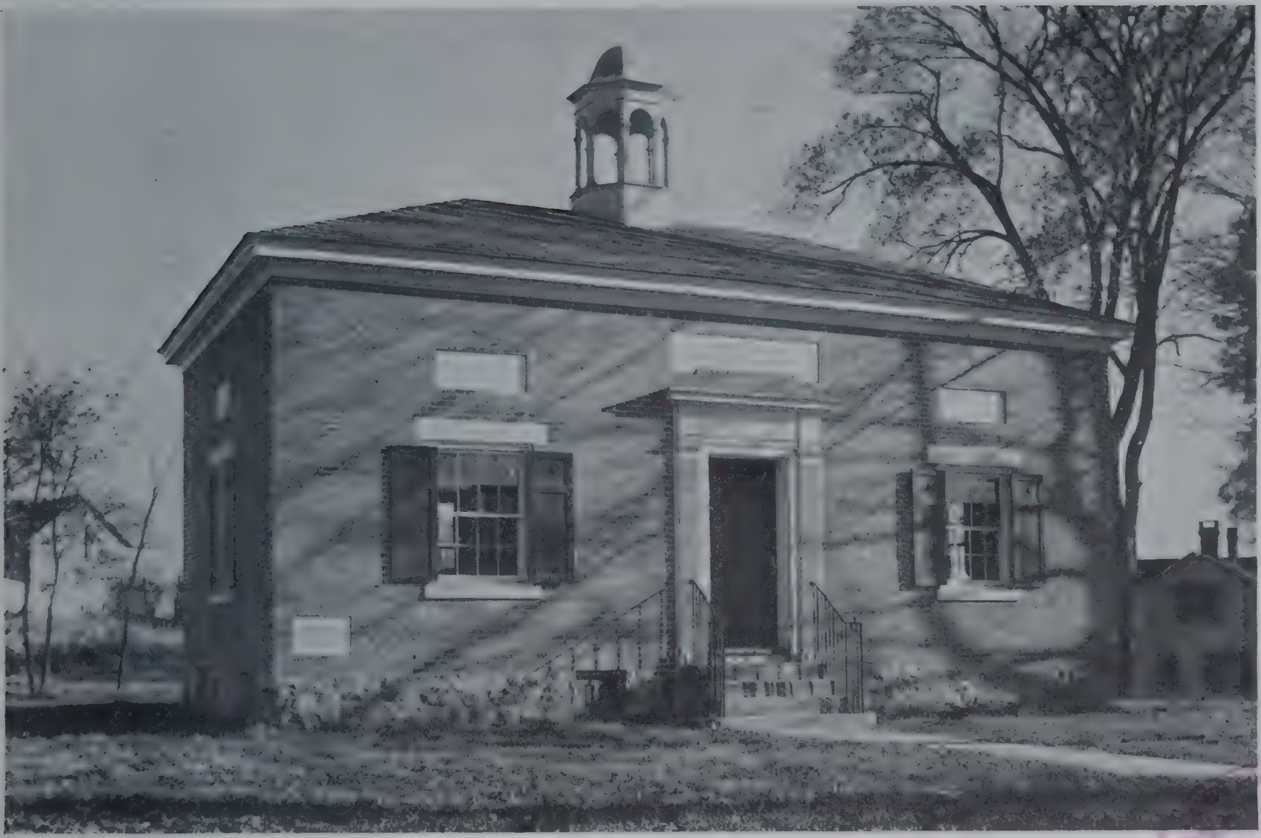
ecessor on State Street was soon given over to stores and mercantile offices. Rescued from these and converted into an historical museum, its latest transmutation involved the converting of the cellar into a subway station, certain alterations also being made.

The City Hall, in New York, hardly belongs in the "small town" class, for when it was designed by John McComb, in 1803, it served a population of about 79,000. The delicate treatment, however, may well be followed in smaller buildings today. The scale and composition of the facade are so masterly that it has held its own, even when overtopped by the Woolworth Tower and the Municipal Building.

The central portion of Independence Hall, built of brick, roofed with copper and crowned by a graceful cupola, is a model of Colonial architecture and even more generally adaptable than the rather formal stone orders of New York. Though there is some uncertainty of its authorship, Andrew Hamilton is generally named as the architect.

The neo-Grec Town Hall of Salem, built in 1838, might be called a "dated specimen," since it so typifies the last phase of architecture before the dark ages of art which shrouded the middle of the nineteenth century. It well represents the "Greek Revival."

The Town House, when it exists as a distinct building, lends itself to monumental treatment, and after each war the natural desire to create memorials, followed by a reaction toward saving on their cost and squeezing a utilitarian dividend out of the investment, has suggested the Town Hall as a com-



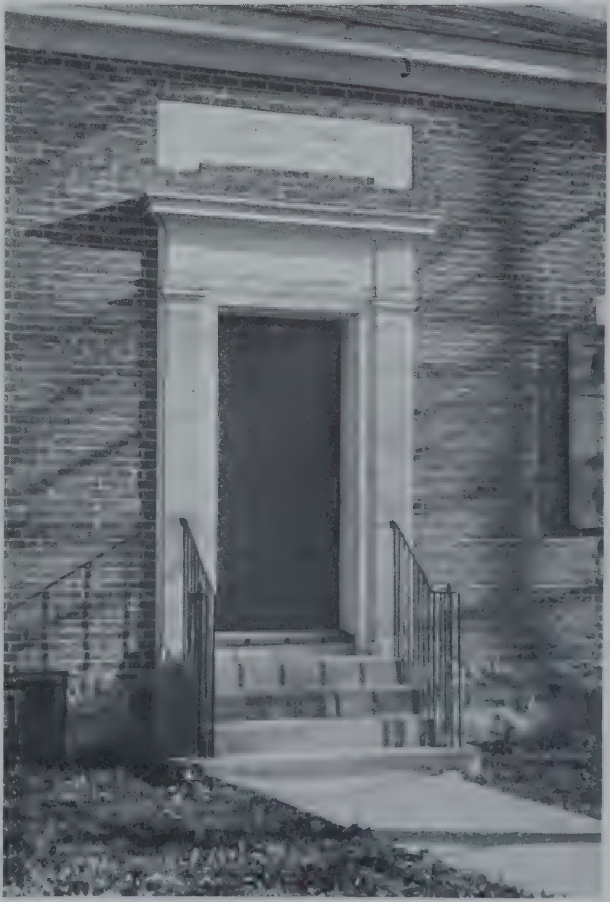
Town Hall, Greenfield, N. Y.
Lewis E. Welsh, Architect

LIBRARY

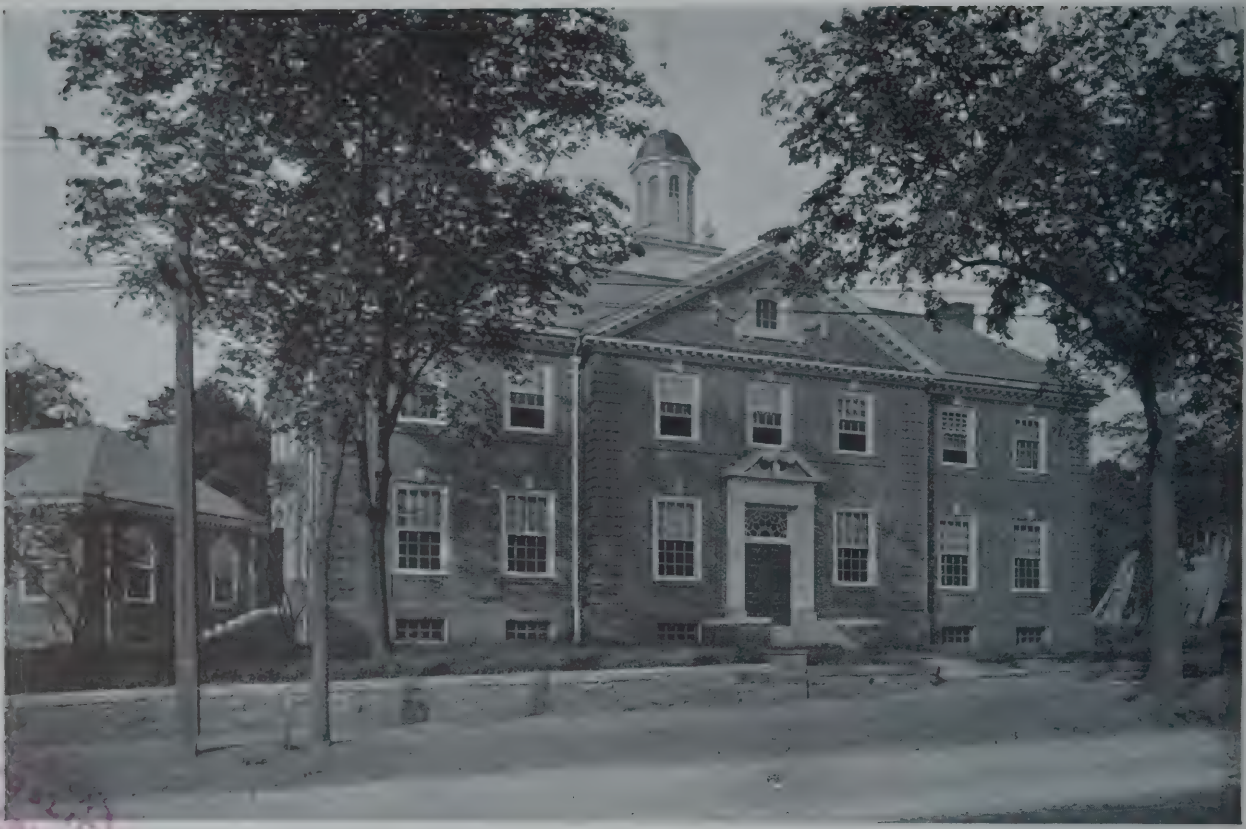
promise. Survivals of such compromises in other days still stand as warnings against false economy. A little Hall was erected "up state" in the eighteen-seventies in memory of the immortal dead. Today it is so crude and decrepit that the surviving G. A. R. veterans are ashamed of it. In one thrifty suburb, the taxpayers wished to dedicate their spic-and-span municipal building to those who had served in the World War;—but the lustre of the tribute was somewhat dimmed by a cynic who pointed out that the money had been voted for construction some fifteen years before, with the idea of its serving at that time also as a Civil War Memorial,—and the fact had already been forgotten!

The Town Hall can be made interesting from the historical point of view by means other than calling it a War Memorial. No place is more appropriate than the Town House for relics and records of the town's past,—not bronze tablets or stained glass windows, but rather the incorporation in the public lobby of some handsome old doorway taken from a house erected in the early days, or a quaint tavern sign, if there are local historic traditions. The corridor walls can be made an historical museum by hanging upon them a display of Indian relics or of early prints and photographs.

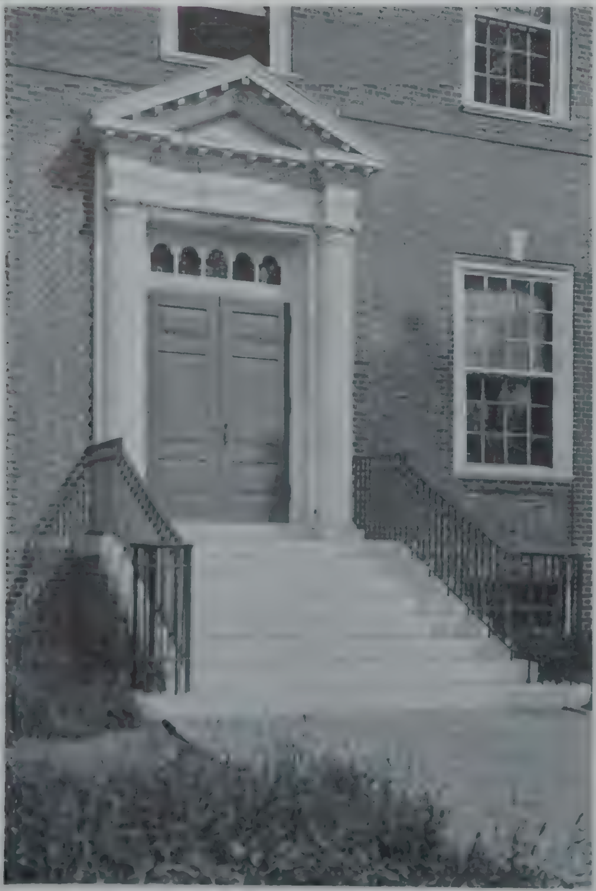
The size of the Town House does not depend on the length of the voting list, for in smaller communities, where the citizens still gather to make their local laws directly, the hall, as such, is needed; where the electorate has become so large that representa-



Detail, Town Hall, Greenfield, N. Y.



Town Hall, Reading, Mass.
Adden & Parker, Architects



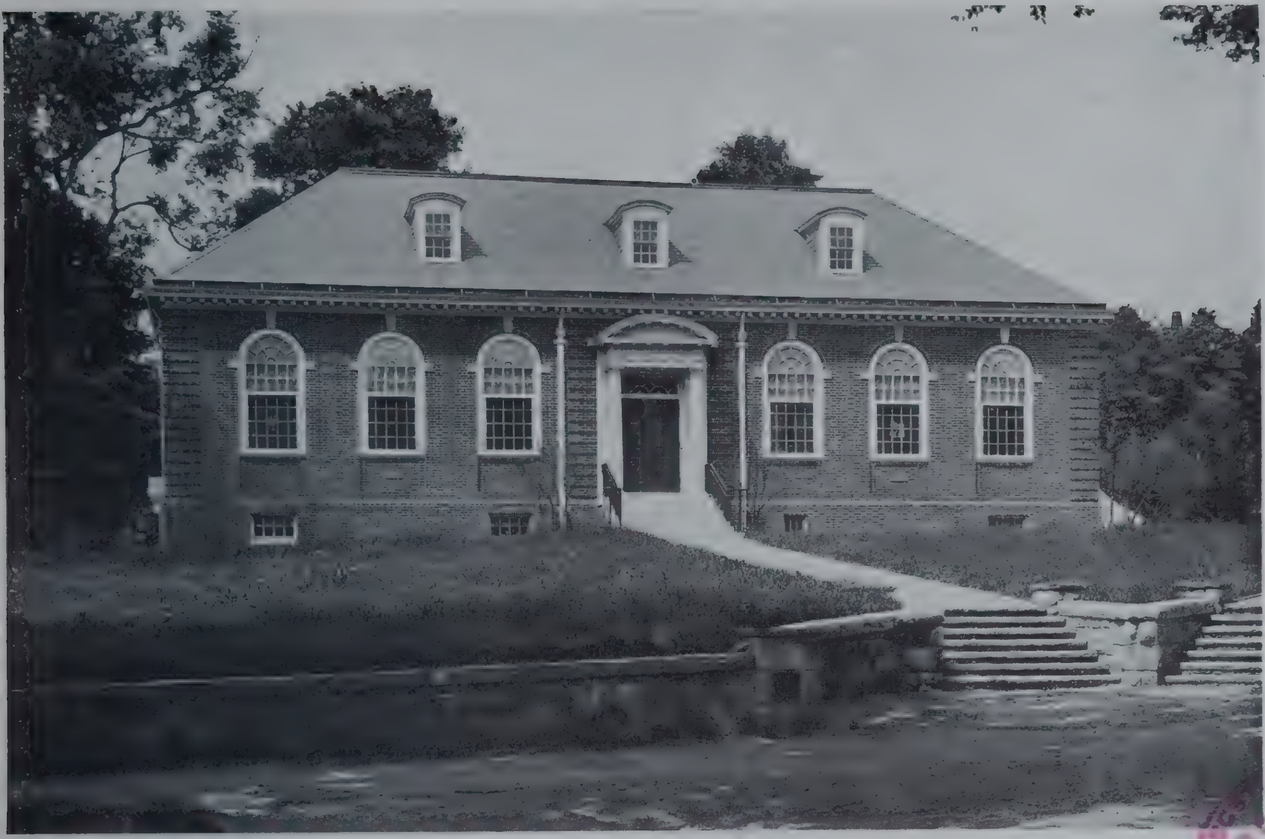
Detail, Town Hall, Reading, Mass.

tive government is required, the Council Chamber or Selectmen's Room may take the place of the Hall. Unless the site is sloping, and so allows easy access on two levels, the general practice is to place the auditorium on the main floor, for the convenience and for the safety of large gatherings. As basement rooms are not desirable, and offices above a hall are not easily arranged, the auditorium has developed naturally as a one-story, rear wing.

As the legislative quarters become smaller the size and number of the executive offices become larger. But for the lesser township, the Clerk's office and a big safe are almost the sole essentials; the "movie" theater or the Grange will do for the vote casting!

In small communities, where the size of the public office building must be kept down on account of both first cost and maintenance, and where the clerical force is strictly limited, particular attention must be given to grouping the various departments around one or more centers where a member of the permanent staff is at work behind a rail. Incidentally, this rail or counter can be used to great advantage if made a good 40 inches high for convenience in writing, with the entire inside a nest of filing drawers. The grouping of departments also simplifies the concentration of the fireproof files.

In one Town Hall, the departments are coördinated, with the financial offices on the first floor, on one side of the entrance, these offices including those of the Treasurer, Collector, Auditor and Assessor. From them a private stairway leads directly to the

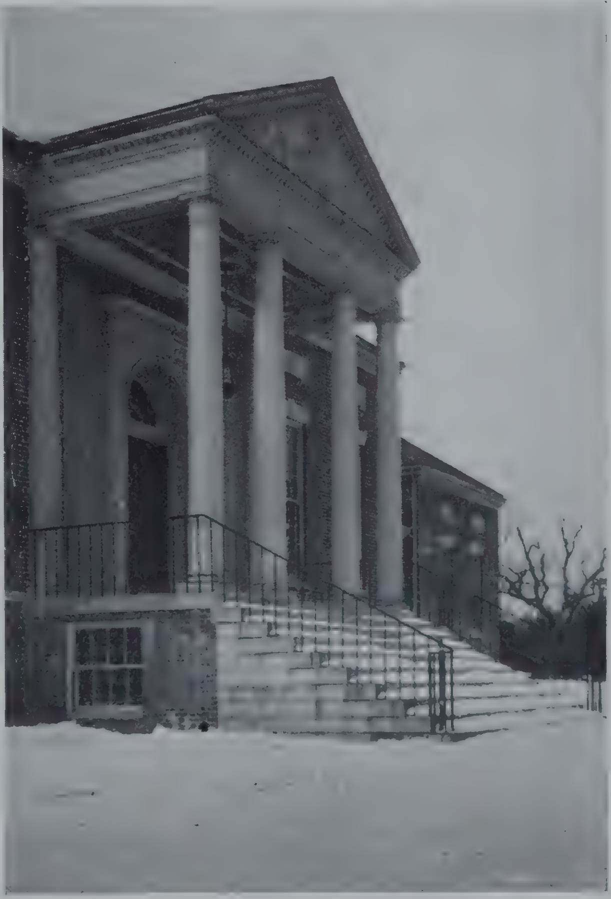


Town Building, Reading, Mass.
Adden & Parker, Architects

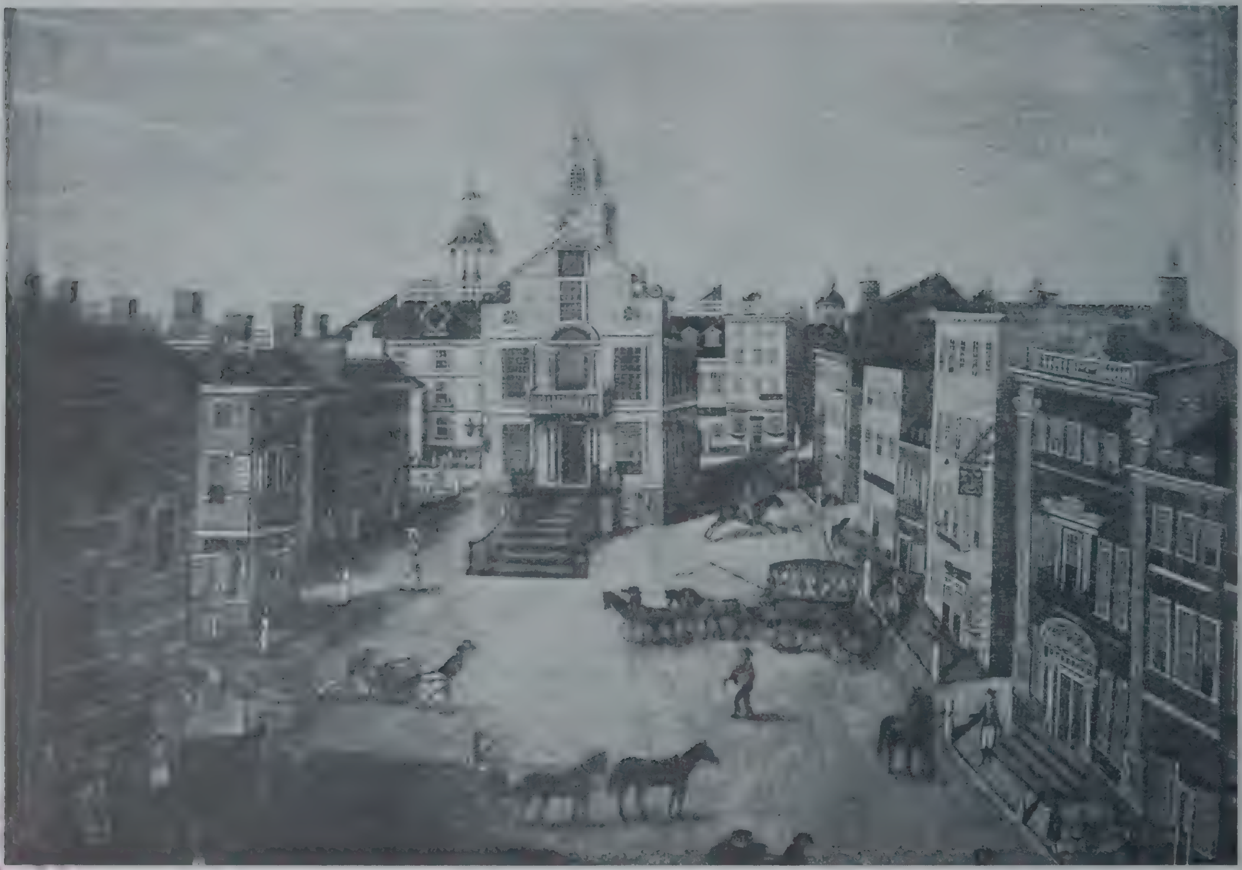
large fireproof storerooms in the basement, which supplement the vaults above. On the other side of the main lobby are the Street, Water, Engineering and Building Departments, with a common drafting room and special filing shelves for blue prints. These departments were placed on the ground floor because they are those most frequently visited by the public. On the second floor are the Council Chamber and the offices less often consulted by the townsfolk and more deserving of privacy and quiet. In the basement is the Bureau of Weights and Measures, with convenient access to the street.

An auditorium (if there is one) or a council chamber is used comparatively few times during the year for legislation, and if an entrance can be planned so that this hall may be cut off from the rest of the building, it can serve the taxpayers for lectures, dances and meetings, and in the smaller towns become a fairly definite source of income.

Opinions vary as to the justification for allowing space for such organizations as the Public Library, the Chamber of Commerce, veteran societies and the Red Cross. In one town a strong drive was made to include a restaurant in the basement, which could be used as an adjunct to the auditorium, and six days a week serve as a gathering place for those interested in the town's affairs! It is almost to be regretted that this extreme use of space for a non-governmental purpose was not adopted; would it have become the center for serious minded clerks or a convenient rendezvous for scheming politicians?

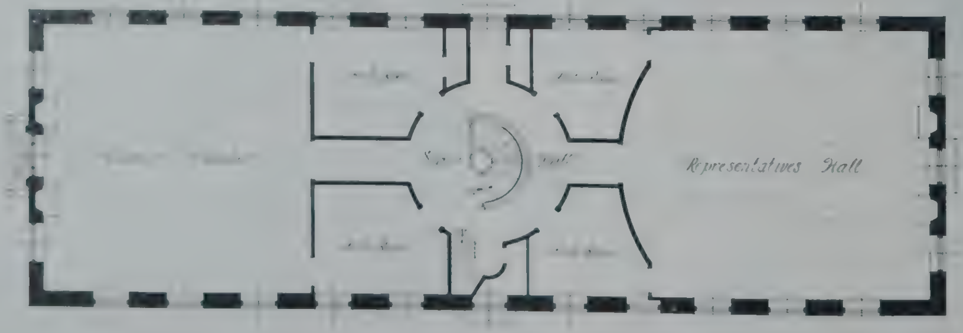


Entrance, Town Hall, Dover, Mass.



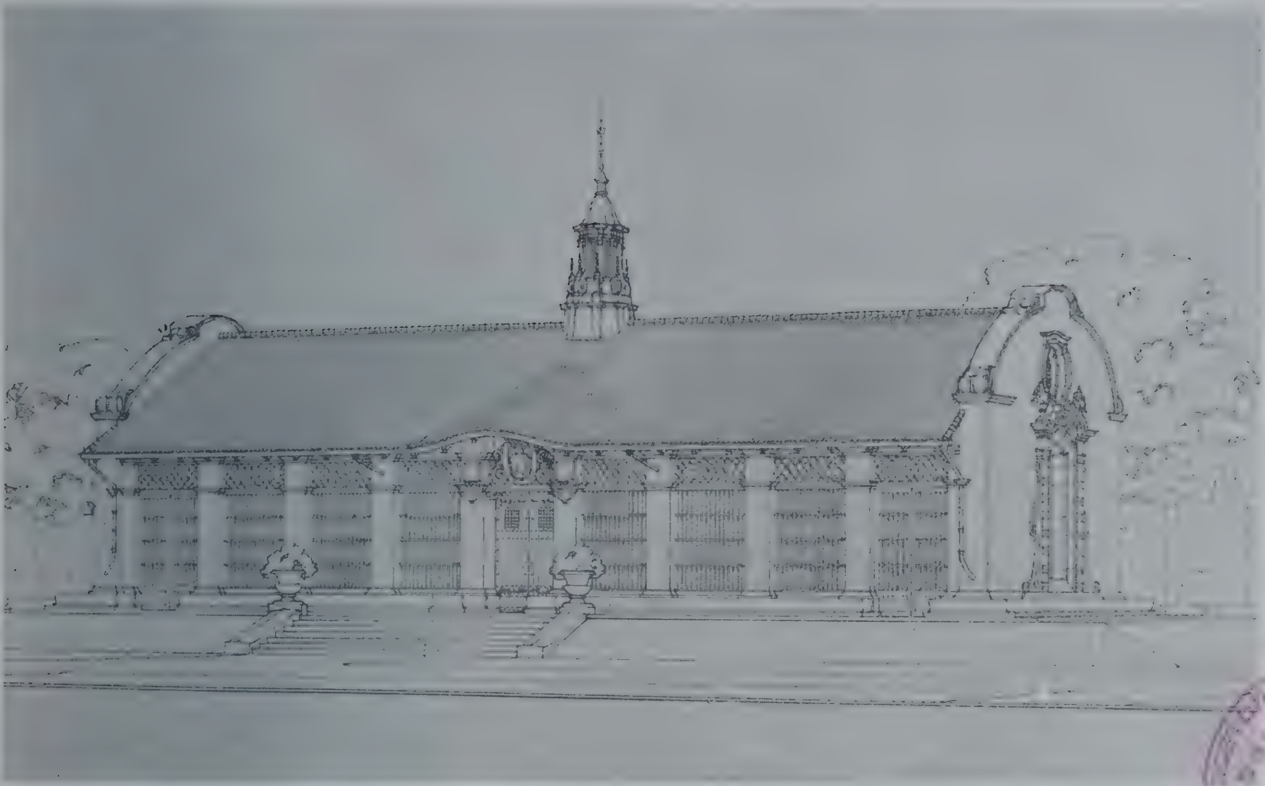
Town House, Boston, From an Old Painting in the Collection of the Massachusetts Historical Society

Among the small modern Town Halls which follow the tradition of the northern colonies, that at Greenfield, N. Y., designed by Lewis E. Welsh, should take precedence. The very limitation of its size adds to its charm, and yet cannot detract from its sturdy uprightness of character. On the other hand, the Robbins Memorial Town Hall at Arlington, Mass., of which R. Clipston Sturgis was the architect, is almost outside the bounds of an article on small town halls because of the building's size, expensive material and imposing character. It is included here for the sake of contrast with that at Greenfield, and for comparison with the New York City Hall. The free silhouette of the Tewksbury, Mass. Town Hall, by Kilham, Hopkins & Greeley, is a noteworthy bit of design, well adapted to its open surroundings, and suggestive of the tendencies developed in the South and in Philadelphia, rather than anything in the New England district. To continue the parallel with the historic examples illustrated in the early part of this paper, John Russell Pope's stone Town Hall in Plattsburg, N. Y., so orthodox and classical, is reminiscent of the neo-Grec prototype from Salem, or certainly of that general architectural period.



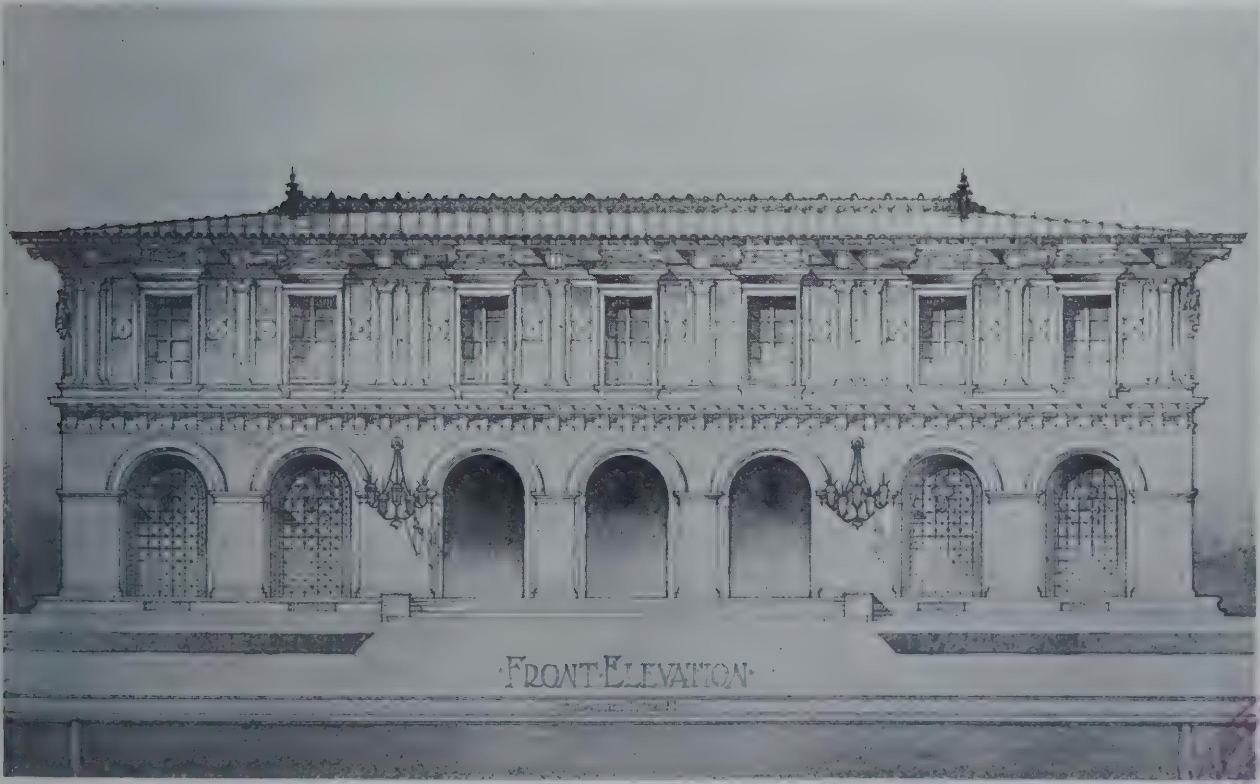
Main Floor Plan, Old State House, Boston

From an Old Drawing



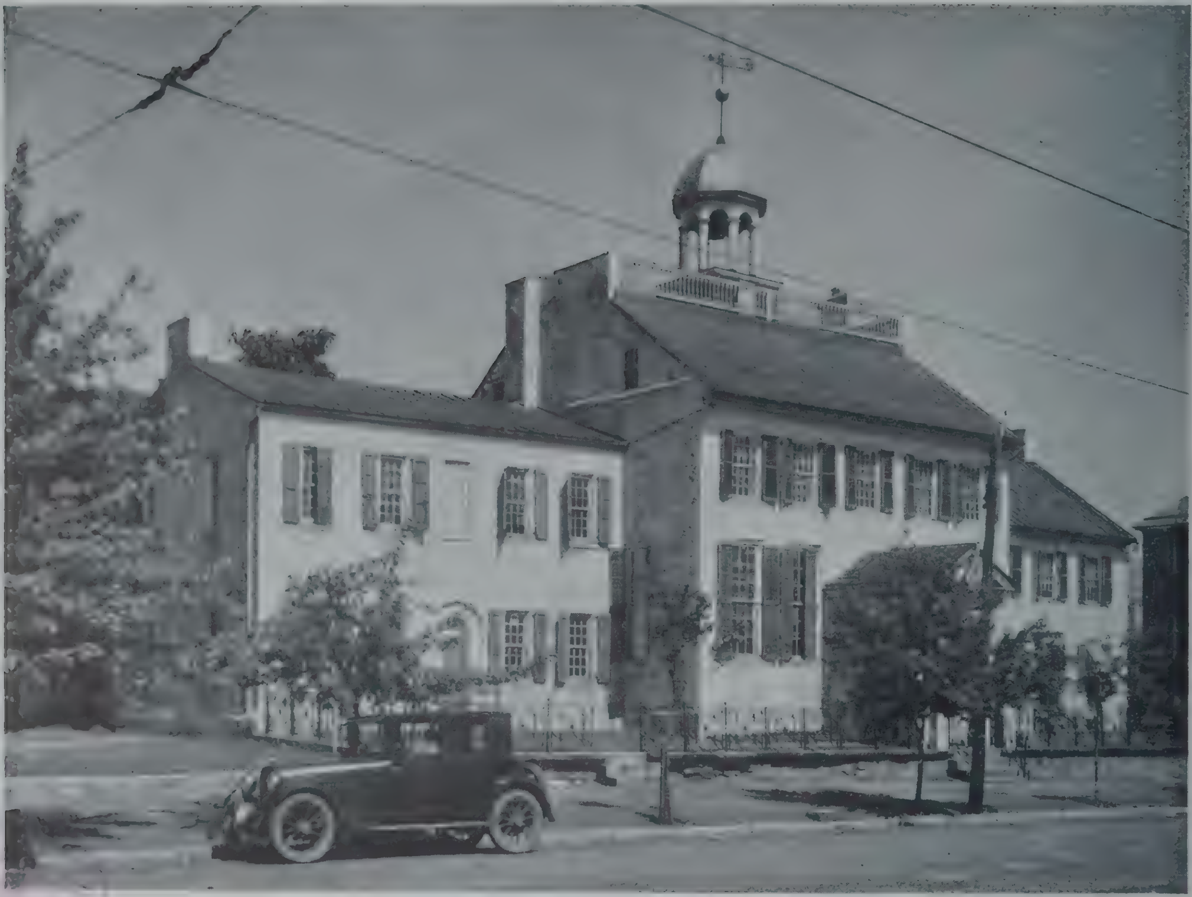
This Town Hall for Caloocan, Philippine Islands, locally called The Presidencia, is constructed of material salvaged from the ruins of old Spanish churches in the neighborhood, destroyed during the War with Spain. At each end of the structure is a pair of doors which will admit the passage of a vehicle. In one end of the building is storage space for the town fire apparatus, and in the other locker space for public employees. The main entrance to the building is in the center, with the offices of the town officials on one side and space for the clerks on the other. The building is built of conglomerate stone with a tile roof. All the openings are protected by heavy mahogany grilles, to prevent thieving when the sliding windows, which are made of shell, are left open

Ralph Harrington Doane, Architect

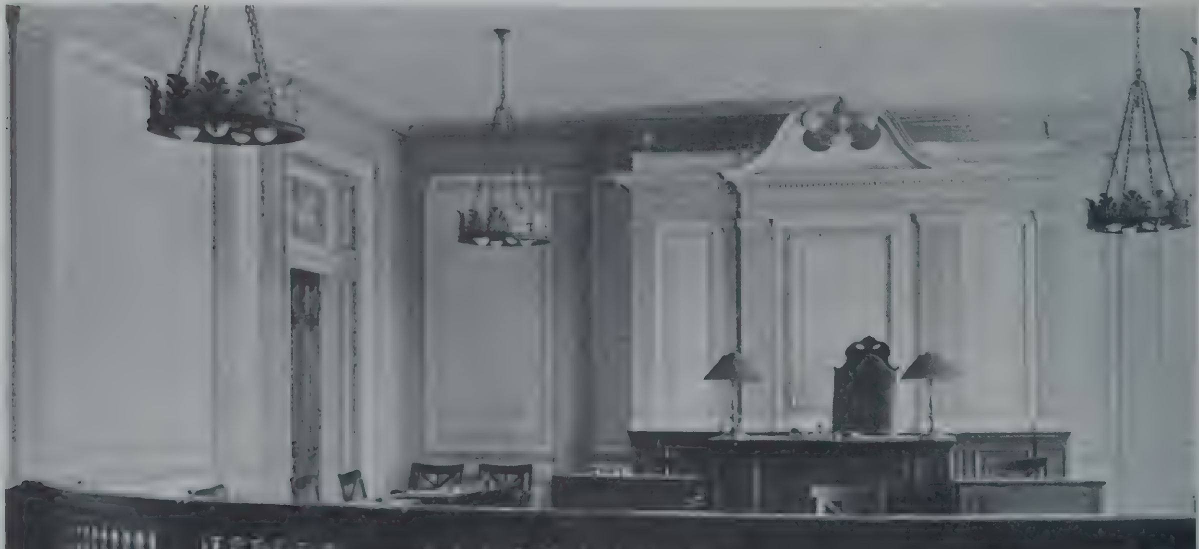


A design for a Town Hall, executed in artificial stone of various colors, with brightly illuminated ornamental cornice. This is one of the larger town halls used in the Philippines, and contains offices on the first floor for all branches of municipal government, and on the second floor a hall for public assemblages

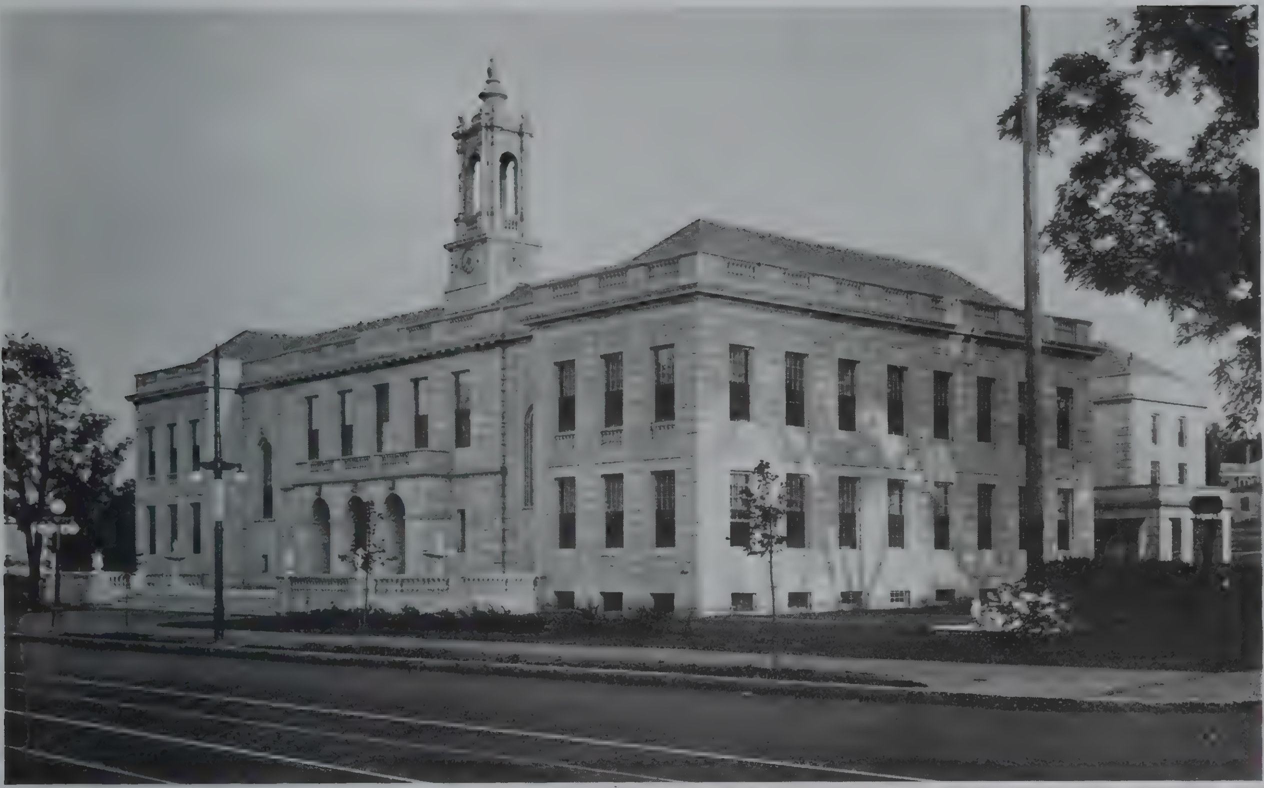
Ralph Harrington Doane, Architect



TOWN HALL, NEWCASTLE, DEL., BUILT ABOUT 1750

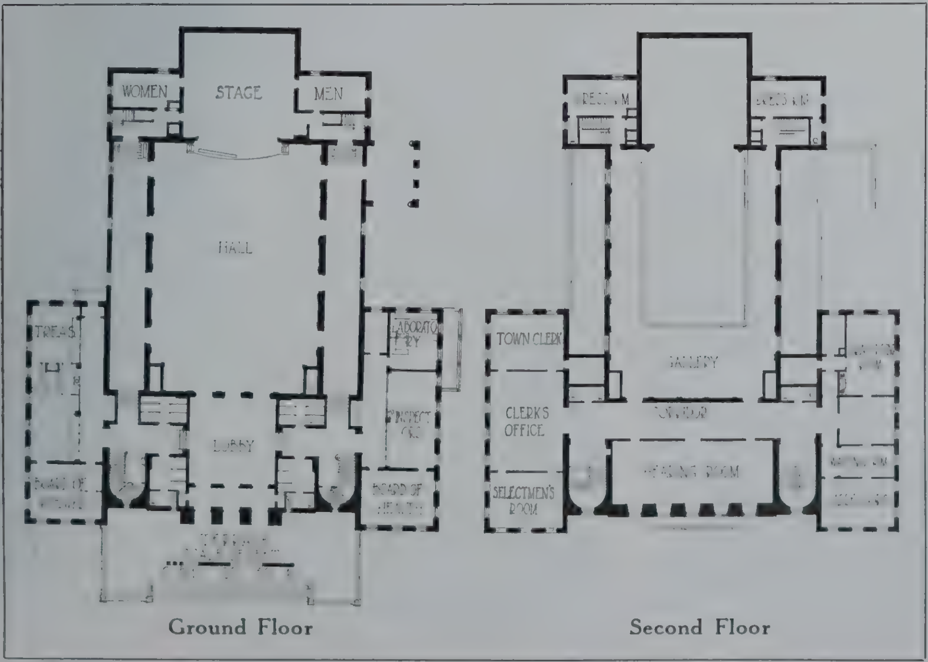


COUNCIL CHAMBER, MUNICIPAL BUILDING, PLAINFIELD, N. J.
LAURENCE F. PECK, WILLIAM LAWRENCE BOTTOMLEY, ASSOCIATE ARCHITECTS



ROBBINS MEMORIAL TOWN HALL, ARLINGTON, MASS.
R. CLIPSTON STURGIS, ARCHITECT

ALTHOUGH completed many years ago, the Robbins Memorial Town Hall at Arlington is still an outstanding example of this particular type of architecture. The exterior design shows a long, low building, two stories in height, the central bay of which is distinguished by a dignified triple arched entrance, the slight projection of which gives it added emphasis and importance. The fenestration is perfectly proportioned and carefully studied in relation to the wall surfaces. The windows of the second floor on the front elevation show a baluster treatment which emphasizes their importance and repeats and balances the balustrade above the entrance portico. The simple cornice which crowns the two-story facade is surmounted by a balustrade of perfect proportions. It often happens that balustrades are made too low, so that when seen from close range they are inadequate in height to act as a proper crowning feature of a design derived from classic precedent. But in the case of the Arlington Town Hall this crowning balustrade is right in height, so that it assumes proper scale and importance as a part of the whole design, whether viewed from a distance or near at hand. The use of small panes of glass for the many windows still further emphasizes and makes perfect the scale of this beautiful building. To break the length of the structure a belfry or cupola surmounts the roof above the pavilion at the center.



Ground Floor

Second Floor

The plan of the build-

FORUM SPECIFICATION AND DATA SHEET — 64

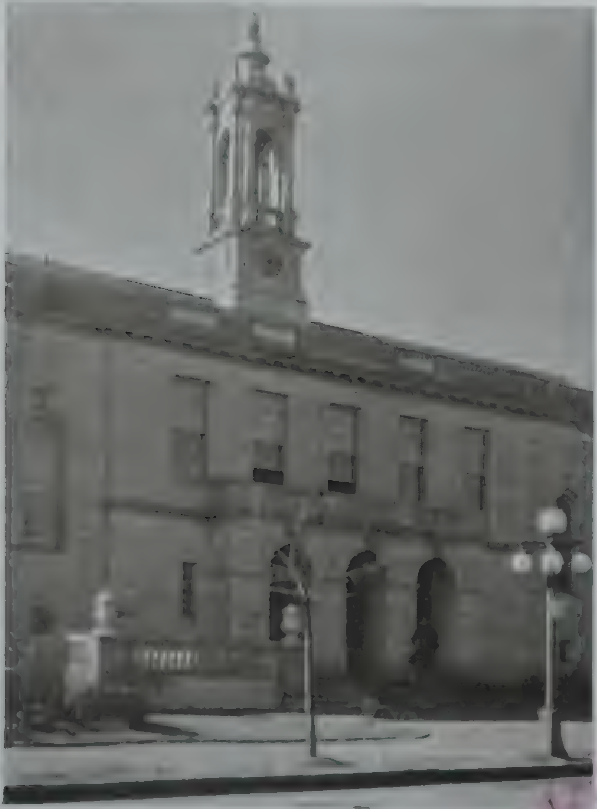
Robbins Memorial Town Hall, Arlington, Mass.; R. Clipston Sturgis, Architect

OUTLINE SPECIFICATIONS

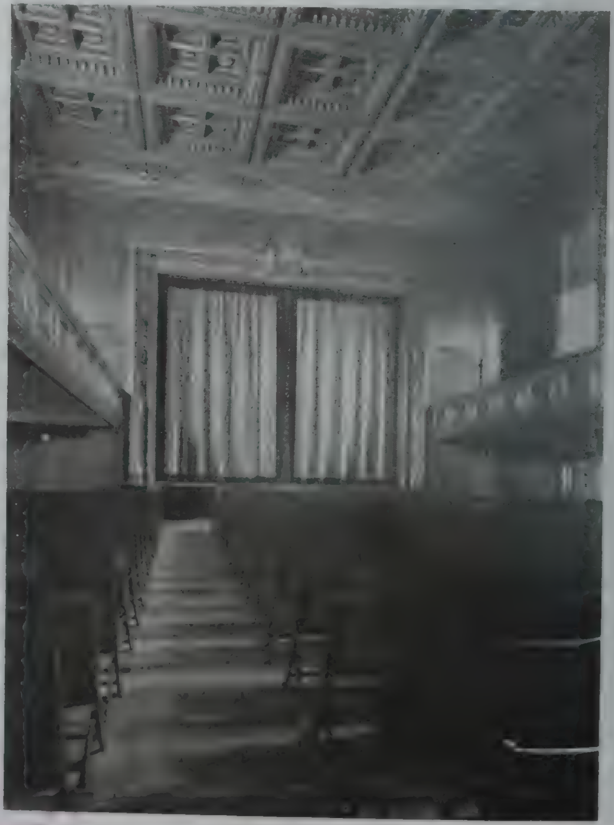
GENERAL CONSTRUCTION:
Fireproof.
EXTERIOR MATERIALS:
Limestone.
ROOF:
Slate.
WINDOWS:
Wood, double-hung.
FLOORS:
Marble, terrazzo and wood.
HEATING:
Steam, direct and indirect.
PLUMBING:
Brass piping throughout; porcelain fixtures.
ELECTRICAL EQUIPMENT:
Lighting and vacuum cleaning.
INTERIOR MILL WORK:
Chestnut, stained brown.
INTERIOR WALL FINISH:
Smooth-finish, plaster, painted.
DECORATIVE TREATMENT:
In the hall, plaster ceiling is in gold and colors.
WALLS:
Chestnut, stained brown, with gold on carving.
APPROXIMATE CUBIC FOOTAGE:
624,025.
COST PER CUBIC FOOT:
About 28½ cents.
DATE OF COMPLETION:
June 3, 1913.

ing is as carefully studied and well balanced as is the exterior design. The chief feature is the large hall and deep stage, which may be used not only for municipal purposes but also for concerts, dances and theatrical performances. This hall extends well back of the front or main part of the structure, and has long side corridors and a separate covered carriage entrance at the rear.

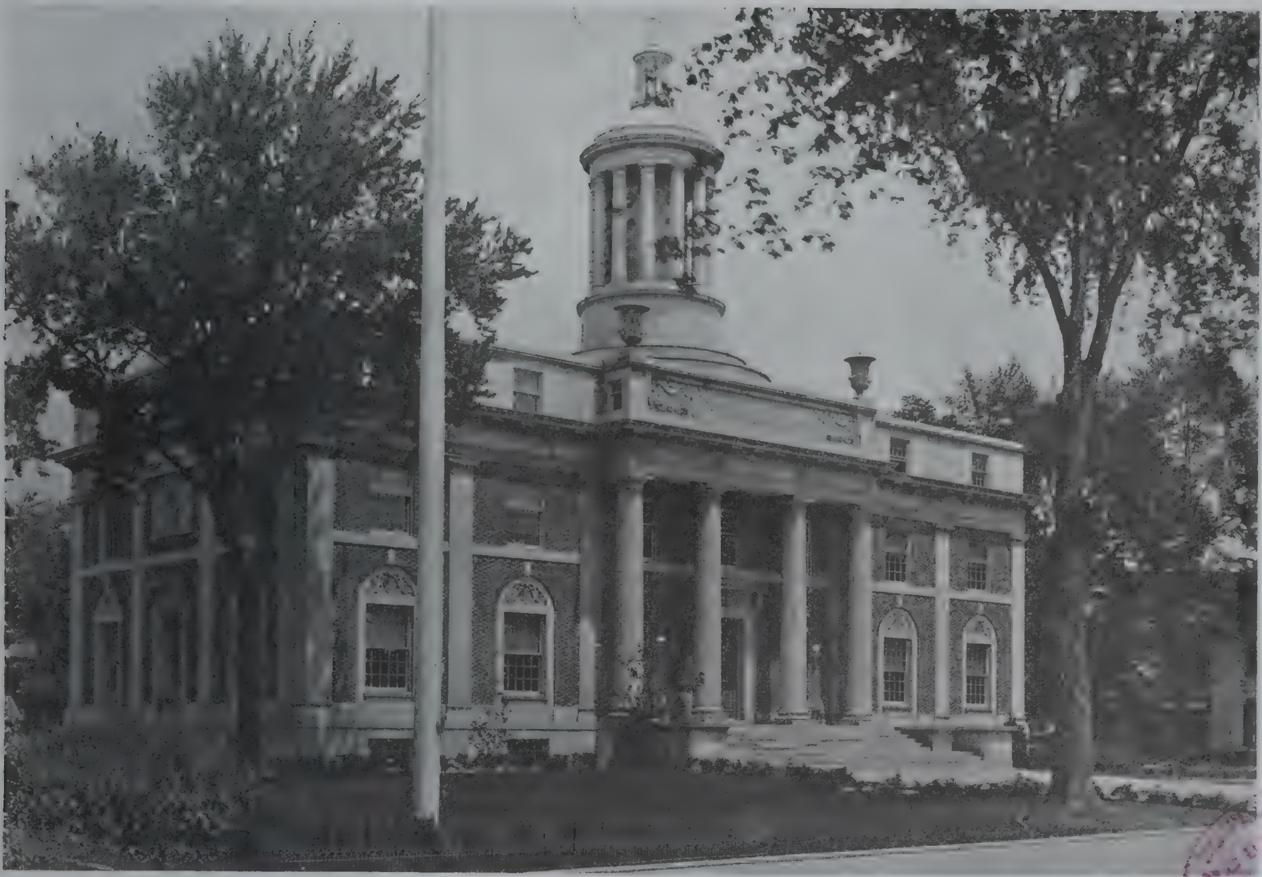
The architectural detail and character of the interior of the building consistently and perfectly repeat the Renaissance expression of the exterior. The main hall itself is a splendid example of the richness of detail combined with warmth and depth of color treatment characteristic of the Renaissance style. The dull gold and color of the highly ornamental paneled ceiling contrast effectively with the deep brown tones of the paneled walls and balcony railings. The richly ornamented and gilded proscenium opening, with its heavy hangings of dull red and old gold damask, gives the final touch needed to make this hall an unusually fine example of the use of Italian and English Renaissance precedent in modern American work. The entire hall literally glows with subdued richness and color.



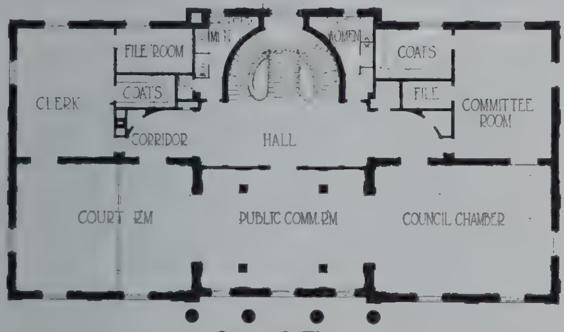
Entrance Front



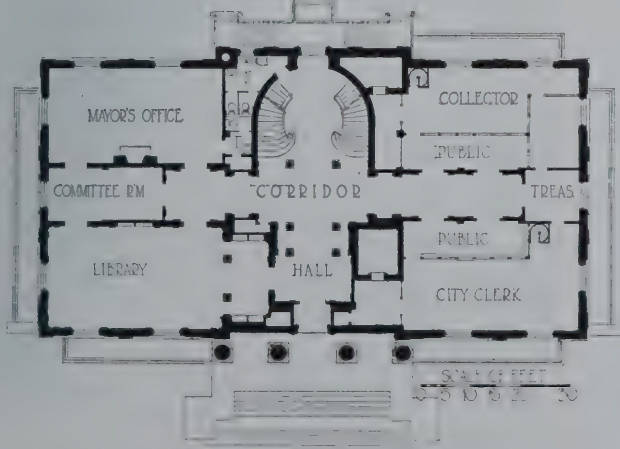
Hall and Stage



MUNICIPAL BUILDING, PLAINFIELD, N. J.
LAURENCE F. PECK, WILLIAM LAWRENCE BOTTOMLEY, ASSOCIATE ARCHITECTS



Second Floor



Main Floor

ANOTHER fine example of the use of Renaissance precedent in town hall architecture is found in the Municipal Building, Plainfield, N. J. The combination of deep red brick walls and limestone trimmings gives an effective and colorful exterior. So large a part of the design is carried out in limestone that the brickwork gives a pleasing effect of panels between the wall pilasters, foundation, string course and entablature.

The carefully studied design of this building, which won the competition for the Plainfield Town Hall several years ago, gives one of the best examples of a compact, well planned small municipal building in this country. No better structure of its type has been erected in the past eight years. Although the Georgian of England is somewhat suggested in the combination of brick and stone, the detail shows distinct influence of the Italian Renaissance. All the mouldings, as well as the carvings, possess unusual refinement and delicacy. The urns which surmount the attic above the entrance portico are distinctly Italian in feeling, which is also true of the candelabra on either side of the entrance door. This door itself suggests Italian work of the fifteenth cen-

FORUM SPECIFICATION AND DATA SHEET— 65

Municipal Building, Plainfield, N. J.; Laurence F. Peck, William Lawrence Bottomley, Associate Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fireproof throughout; reinforced concrete columns and girders; long span, reinforced concrete floor and roof construction.

EXTERIOR MATERIALS:
Brick and limestone.

ROOF:
Composition slag.

WINDOWS:
Wood frames and sashes, double-hung.

FLOORS:
Granolithic and cement finish.

HEATING:
Steam.

PLUMBING:
Porcelain fixtures.

ELECTRICAL EQUIPMENT:
Lighting and vacuum cleaning.

INTERIOR MILL WORK:
White pine, oak and walnut.

INTERIOR WALL FINISH:
Eggshell plaster.

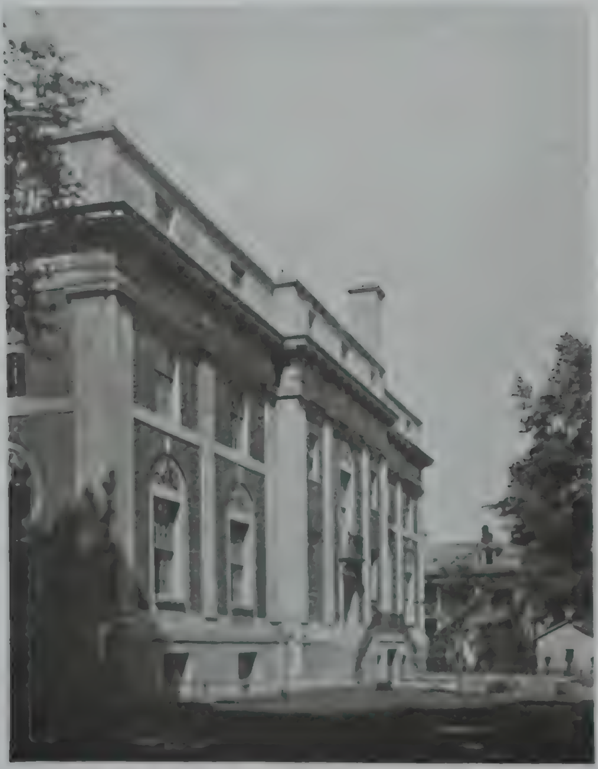
DECORATIVE TREATMENT:
Italian and English Renaissance.

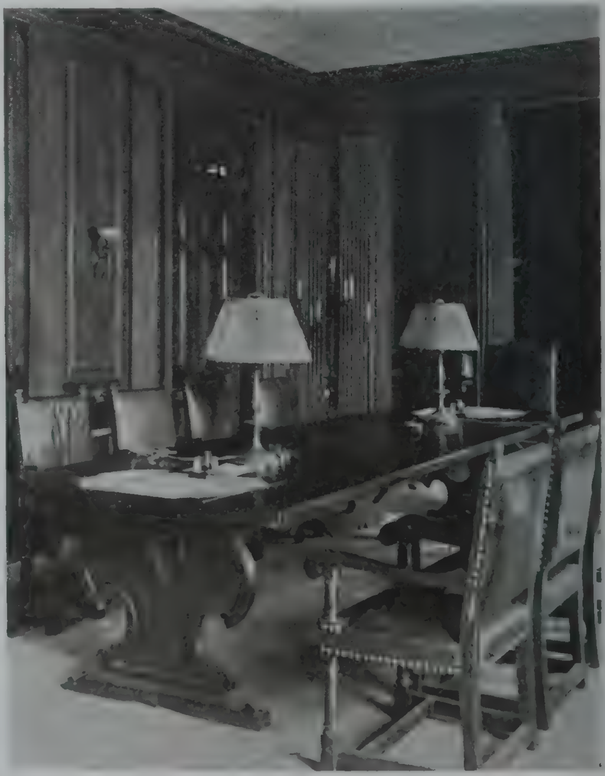
TOTAL COST:
$180,000.

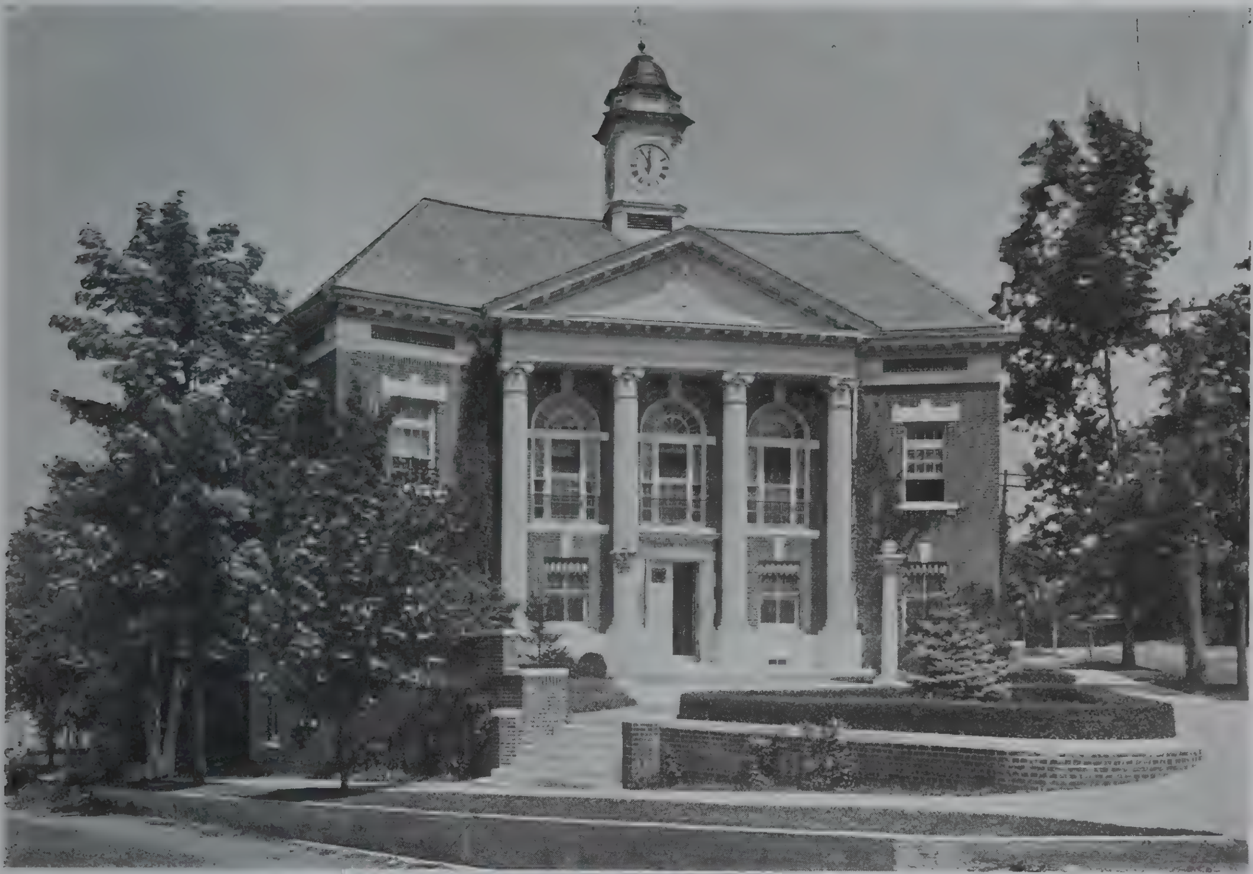
YEAR OF COMPLETION:
1917.

tury. The entrance or center portico is the main feature of the front facade, occupying practically one-third of the elevation. The massive fluted columns are carefully spaced and beautifully proportioned. The verticular note of these columns is repeated by the flat pilasters on the wall surface on either side of the center portico. The whole design is splendidly tied together by the horizontal lines of the base course, string course, entablature and attic. Continuing and emphasizing the importance of the central portico of the design, a splendid cupola or enlarged lantern surmounts the center of the roof. The simplicity and dignity of this lantern add much to the charm of the whole design, which would lose much of its elegance and importance without it.

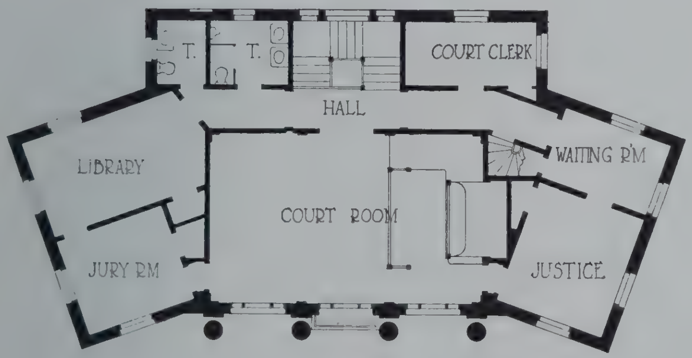
The design and detail of the interior of the Plainfield Town Hall show the same beautiful lines as the exterior. The architecture of the Italian Renaissance, quite as much as the English Georgian, has served the architects for their precedent and inspiration. On page 296 of this issue is an illustration of the charming little courtroom on the second floor of this town building, from which, as well as from the illustration of the paneled library on the first floor, some impression may be gained of the delightful and very distinguished interior details of this building.


Rear Elevation

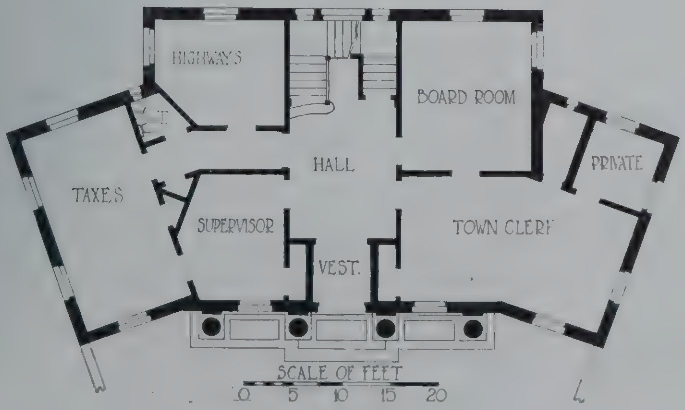

The Library



TOWN HALL, HUNTINGTON, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



Second Floor



First Floor

AN interesting example of the way in which the plan of a building is influenced and more or less determined by the location and topography of the site, is excellently illustrated in this Town Hall at Huntington, N. Y. To begin with, the lot was comparatively small, but well located at the junction of two avenues in the heart of the town. A drop of 5 or 6 feet between the level of one avenue and that of the other made the plan problem difficult and interesting. The building is so laid out that it extends from one avenue to the other, with each end of the structure parallel to the thoroughfare upon which it faces. This arrangement produces an unusual effect on the front elevation, where the importance of the central bay of the building is emphasized by a slightly projecting Ionic portico. Above this portico a high pediment gives still further importance to this center motif of the design.

Brick walls with limestone trimmings are used for the exterior

FORUM SPECIFICATION AND DATA SHEET— 66

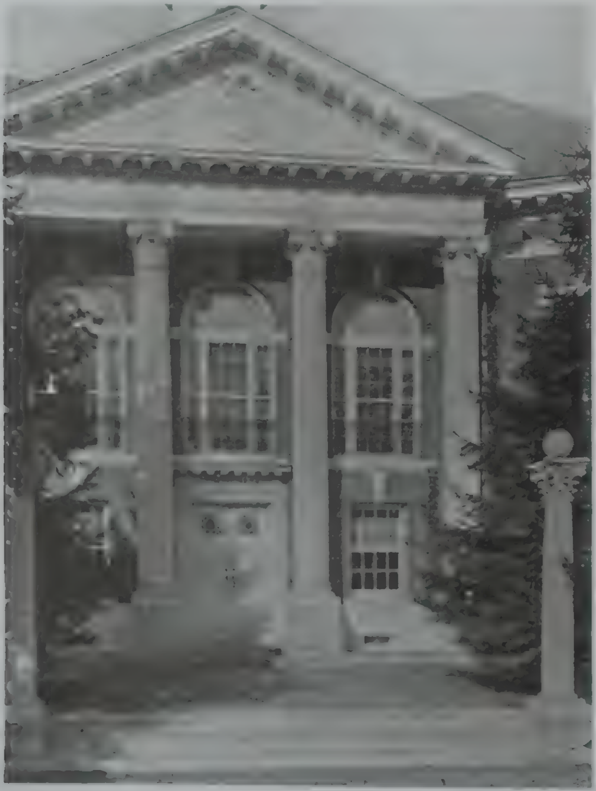
Town Hall, Huntington, N. Y.; Peabody, Wilson & Brown, Architects

OUTLINE SPECIFICATIONS

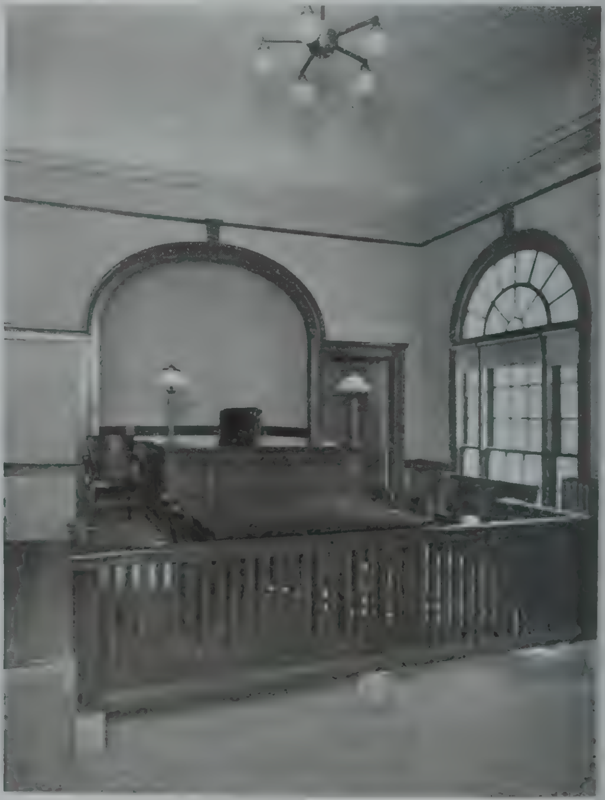
GENERAL CONSTRUCTION:
Fireproof throughout, except for roof.
EXTERIOR MATERIALS:
Brick and limestone trimming.
ROOF:
Wood, covered with slate.
WINDOWS:
Wood frames and sashes, double-hung.
FLOORS:
Terrazzo.
HEATING:
Steam.
PLUMBING:
Enameled iron fixtures.
ELECTRICAL EQUIPMENT:
Lighting.
INTERIOR MILL WORK:
Quartered oak.
INTERIOR WALL FINISH:
Painted plaster.
DECORATIVE TREATMENT:
Stained oak and painted walls.
APPROXIMATE CUBIC FOOTAGE:
78,000.
COST PER CUBIC FOOT:
23 cents.
YEAR OF COMPLETION:
1910.

of the building. Heavy stone keyblocks and lintels are placed at the window openings, while the white painted trim of the doors, window frames and sashes, gives still further contrast to the red brick walls. The Ionic portico which marks the center of the entrance front is made more important by the use of three large arched windows with iron balcony rails on the second floor. These windows successfully suggest the courtroom within. The approach to the main entrance is attractively laid out as a terrace with brick walls and stone coping, which breaks the drop in grade between the two avenues. A low clock tower or cupola surmounts the roof at the center, indicating more completely the public character of the building, besides considerably enhancing its dignity.

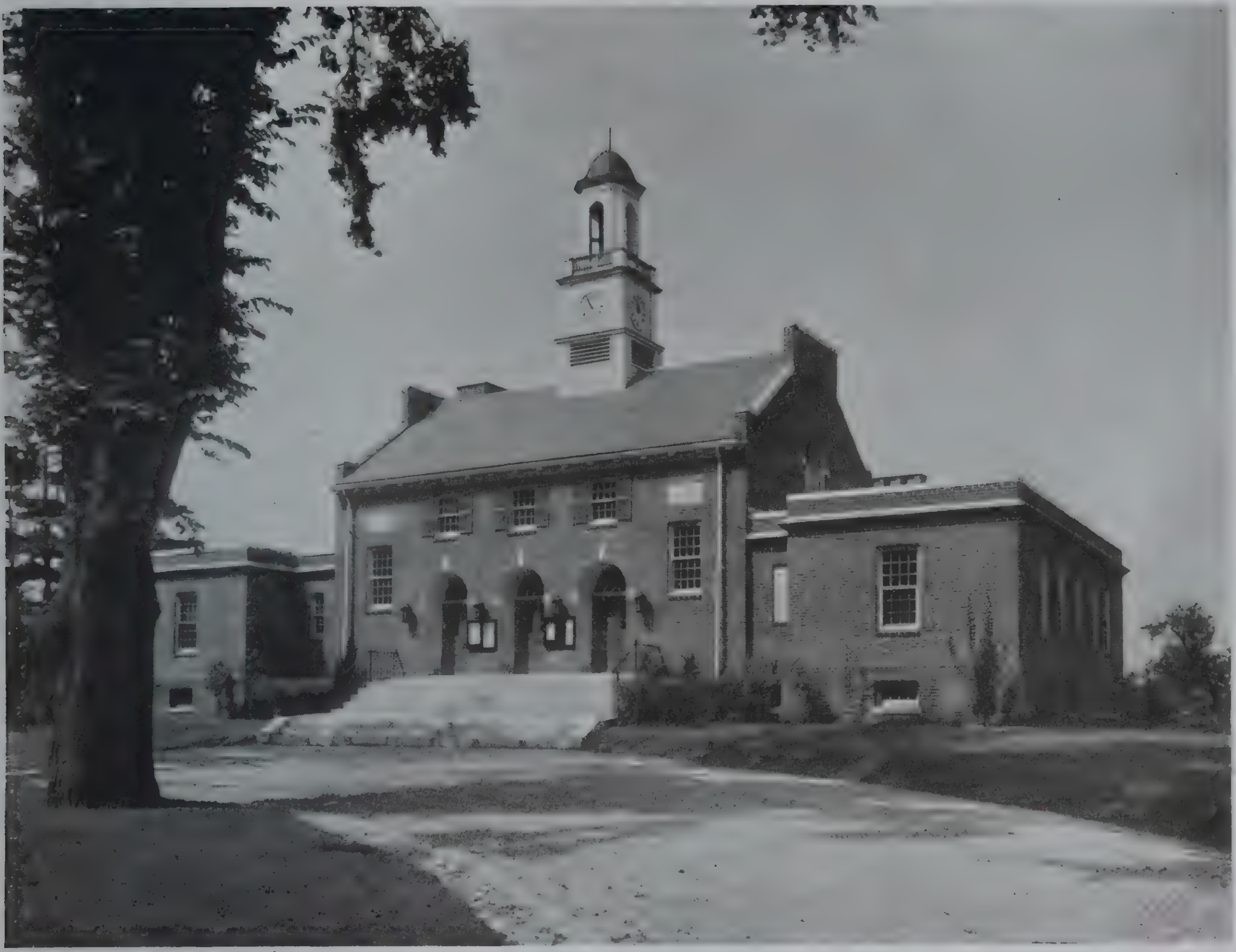
The first floor plan shows a center hall with offices on each side for the town officials. At the rear of this hall is a graceful stairway leading to the second floor, which is occupied entirely by the various rooms of the municipal court. A simplicity and severity of detail mark the interior, though consistent balance in the use of ornament has been maintained.



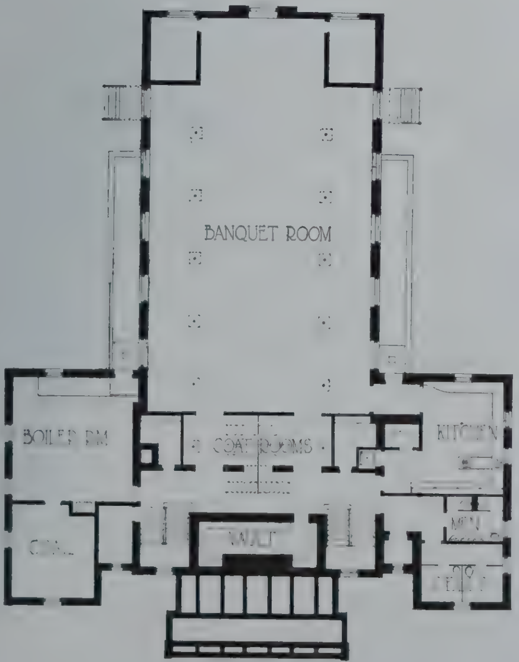
Entrance Front



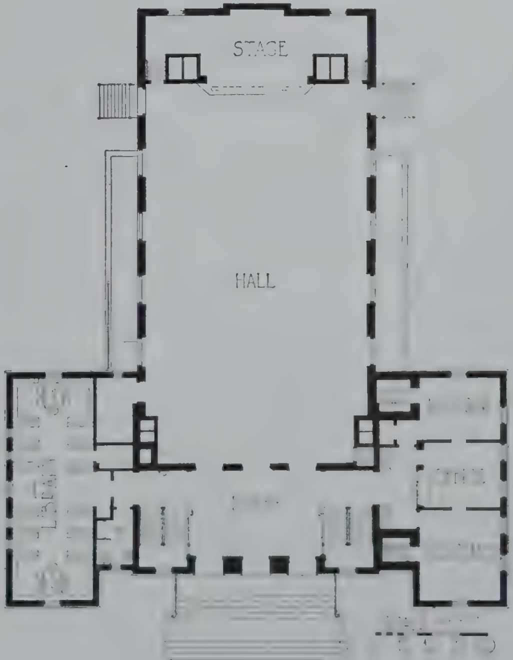
Court Room



TOWN HALL, TEWKSBURY, MASS.
KILHAM, HOPKINS & GREELEY, ARCHITECTS



Basement



First Floor

FORUM SPECIFICATION AND DATA SHEET—67

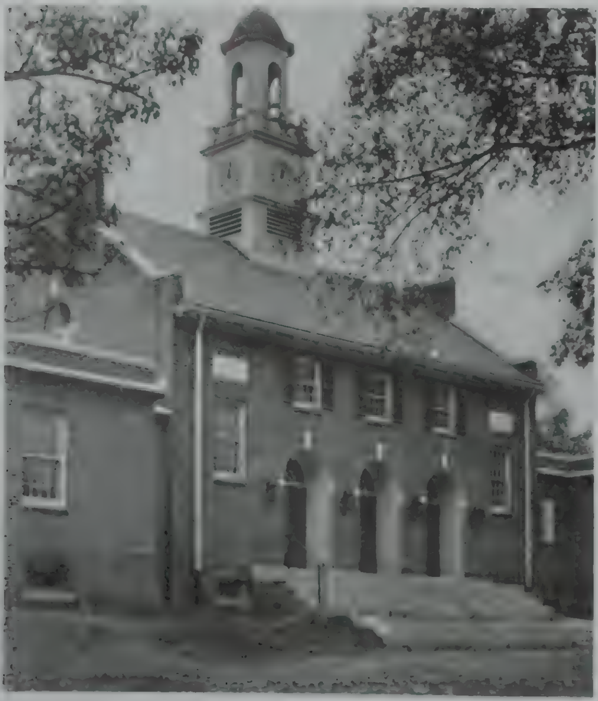
Town Hall, Tewksbury, Mass.; Kilham, Hopkins & Greeley, Architects

OUTLINE SPECIFICATIONS

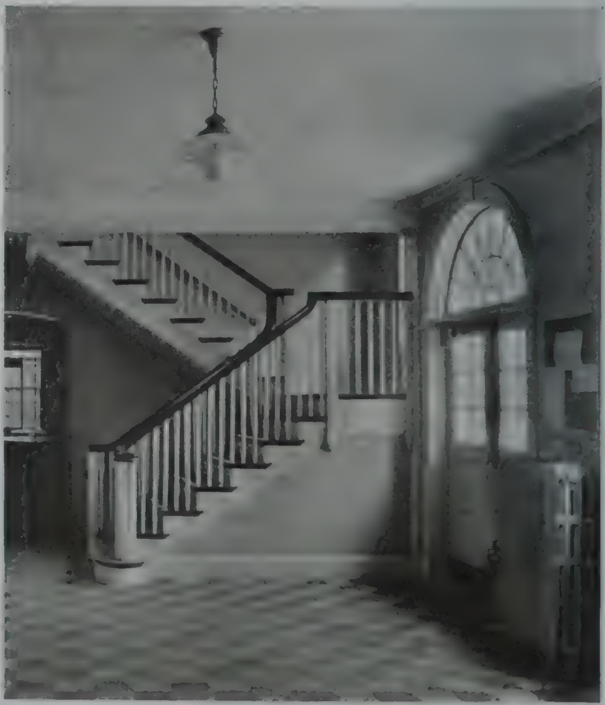
GENERAL CONSTRUCTION:
Second class or slow-burning.
EXTERIOR MATERIALS:
Brick with stone trimmings; wood belfry.
ROOF:
Slate.
WINDOWS:
Wood frame and sash; double-hung.
FLOORS:
Marble and tile for lobby and first floor; wood covered with linoleum and granolithic elsewhere in the building.
HEATING:
Steam.
PLUMBING:
Enameled iron fixtures.
ELECTRICAL EQUIPMENT:
Lighting.
INTERIOR MILL WORK:
Arkansas pine.
INTERIOR WALL FINISH:
Hard plaster.
DECORATIVE TREATMENT:
Painted walls and woodwork.
APPROXIMATE CUBIC FOOTAGE:
189,350.
COST PER CUBIC FOOT:
31 cents.
DATE OF COMPLETION:
June, 1920.

NOTHING could be more appropriate for a small New England community than this delightful red brick town hall, designed in a simple straightforward adaptation of the Colonial style. Here again the topography of the site had much to do with the plan. As the land falls away at the rear of the building, it is possible to utilize the entire basement of the structure, at the front of which are located the stairways leading down from the lobby on the main floor. On one side of this hall are the boiler and coal rooms, and on the other a kitchen, men's lavatory and two cells. The remainder of the basement floor is occupied by a large, low banquet room situated directly under the large auditorium.

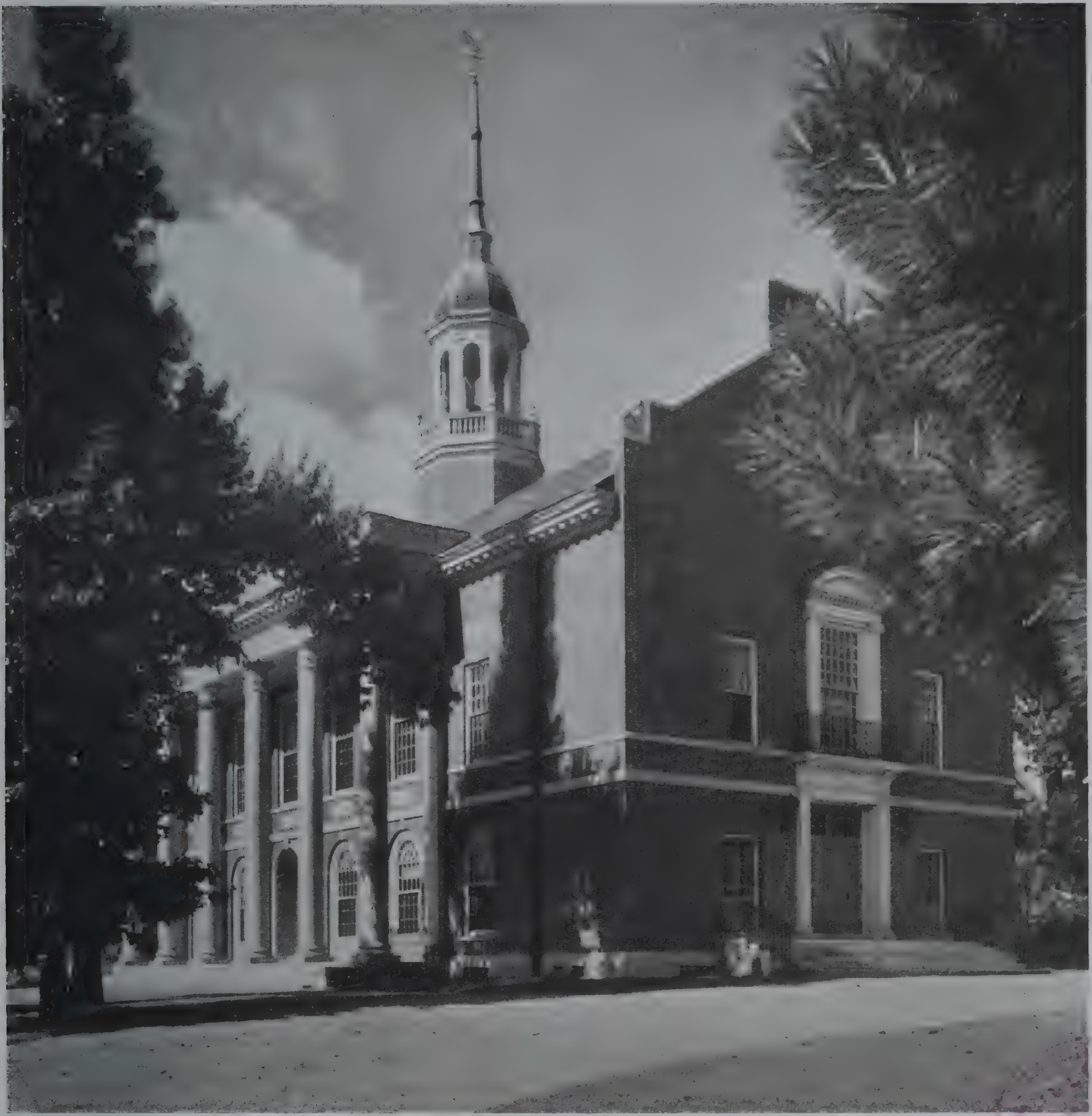
The first floor plan shows a spacious entrance lobby, entered through three large arched doorways. On either end of this lobby are stairways leading both to the basement and to the second floor. The two short wings of the building on this first floor are occupied on one side by a library with coat and toilet rooms adjacent, and on the other by offices for the town officials. Appropriate to the purpose of the building, the hall or auditorium, which is large and spacious, is the main feature of the building. This hall, which is flanked on either side by large arched windows, has exit doors on either side, so that it may be easily emptied in case of emergency. Though it is not large, the building successfully serves its purpose.



Entrance Front

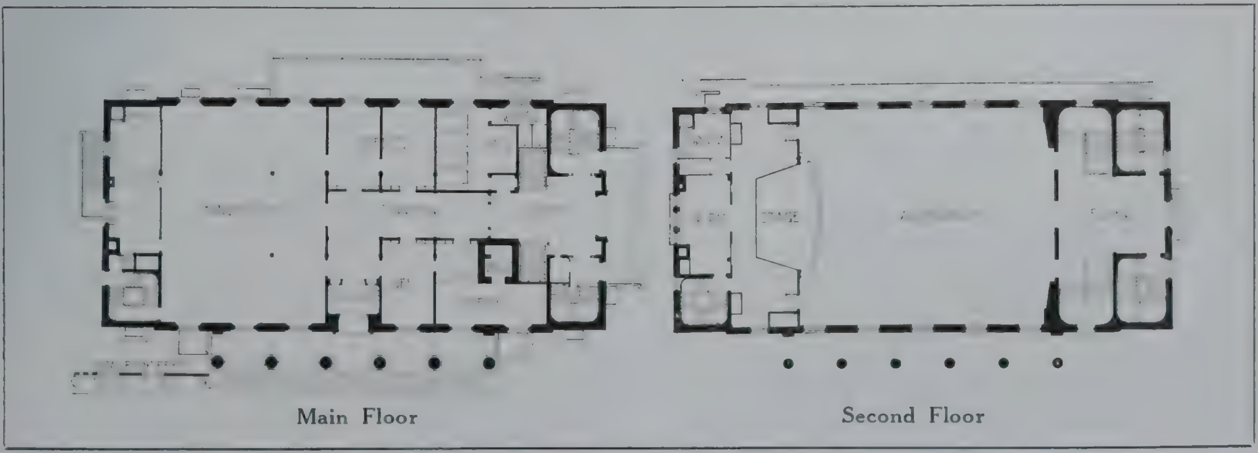


Entrance Hall



TOWN HALL, WESTON, MASS.

BIGELOW & WADSWORTH, ARCHITECTS



Main Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET— 68

Town Hall, Weston, Mass.; Bigelow & Wadsworth, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Concrete foundations, steel girders, wood floor joists and partition studs.

EXTERIOR MATERIALS:
Brick and cast stone. Wood colonnade.

ROOF:
Slate.

WINDOWS:
Wood frame and sash, double-hung.

FLOORS:
Marble in corridors; maple elsewhere.

HEATING:
Steam.

PLUMBING:
Brass piping throughout; enameled fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White birch.

INTERIOR WALL FINISH:
Smooth plaster.

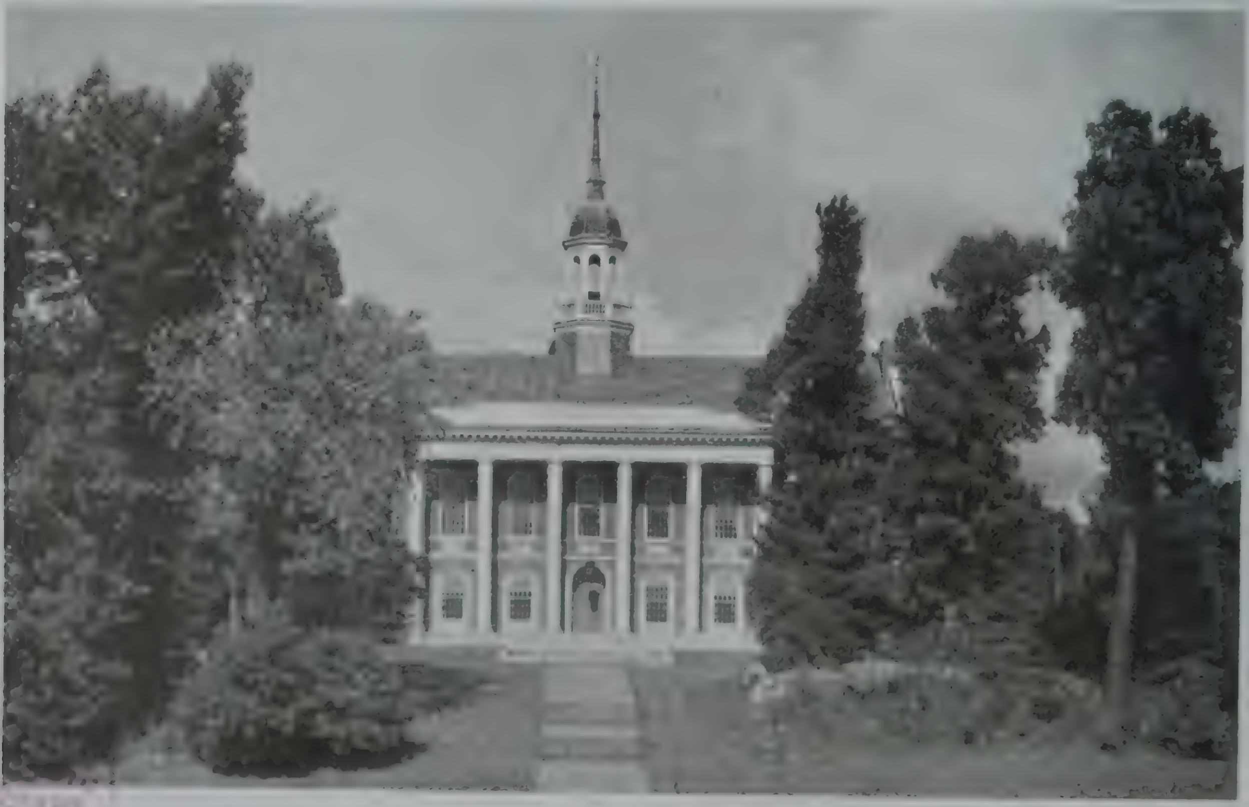
DECORATIVE TREATMENT:
Wood mouldings on plaster, forming panels, together with trim painted.

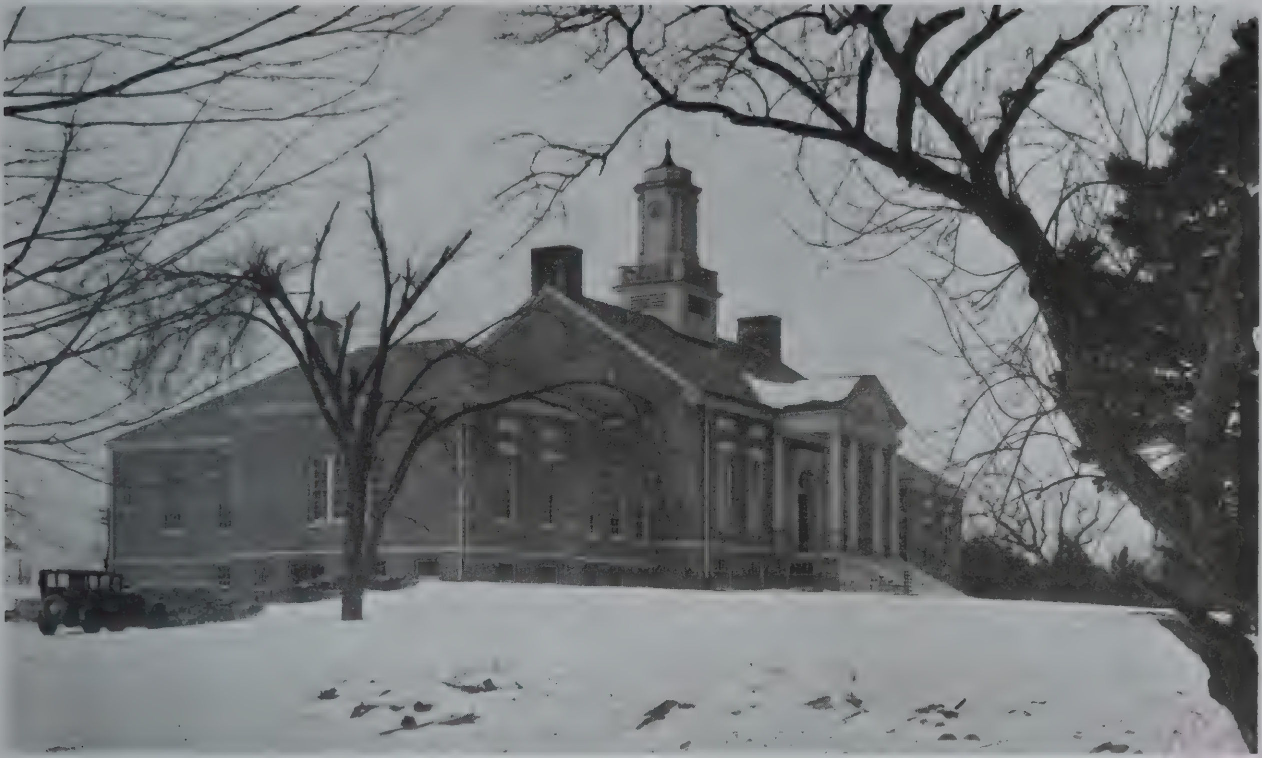
APPROXIMATE CUBIC FOOTAGE:
279,350.

COST PER CUBIC FOOT:
34 cents.

DATE OF COMPLETION:
September, 1917.

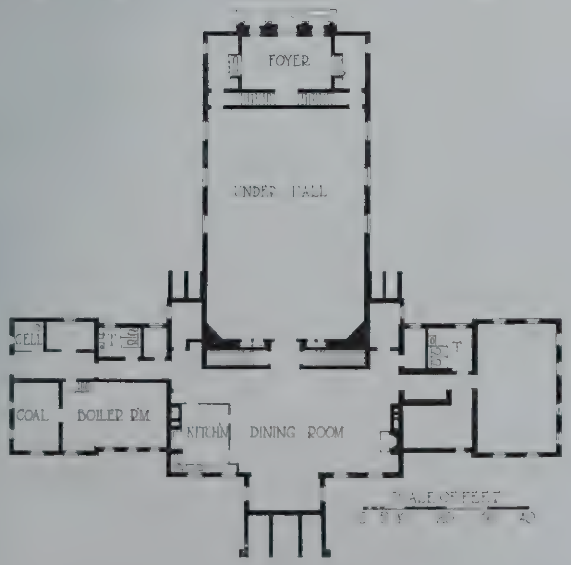
ANOTHER excellent example of the adaptation of the Colonial style of architecture for a modern town hall is found at Weston, Mass. Placed well back from the highroad, the building with its long central colonnade of two-story columns has decided dignity and real impressiveness. A long center path with terraced steps leads to the entrance door in the center of the front facade, while a driveway winds up to a large doorway at the end of the building, which is really the main entrance. The use of red brick with imitation stone trimmings is well suited to carry out the excellent Colonial spirit of the design. Broad, unbroken wall surfaces and carefully proportioned, well located windows add dignity and charm. The high brick gable ends, which terminate above the roof in coupled chimneys and sloping stone copings, are most appropriate for this type of suburban public building, as they give a determining note of strength at either end of the structure. The ground floor plan, in keeping with the purpose of the structure, provides offices, coat rooms, and lavatories for the town officials, as well as a banquet hall with its adjacent kitchen. As the construction of the building is slow-burning, ample stairways are provided in three corners. The Town Hall and its grounds are among the attractions of a distinguished town.



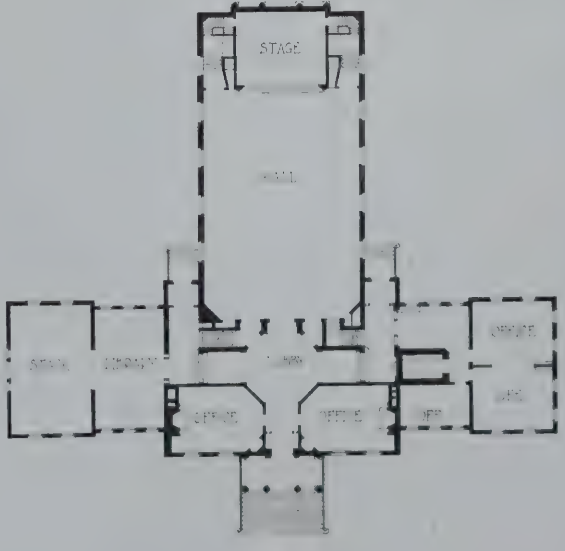


TOWN HALL, DOVER, MASS.
KILHAM, HOPKINS & GREELEY, ARCHITECTS

THIS large and imposing town hall, which was built about three years ago, is another example of the consistent and successful use of the Colonial style in a suburban community building. The design shows a central structure with impressive projecting portico emphasizing the entrance to the building. Large windows balance this central motif, which is made still more important by a splendid arched entrance door, in which the leaded glass and Colonial detail are of exceptional beauty and interest. This imposing entrance portico is flanked on either side by finely proportioned, tall windows, above which stone panels carry the eye up to the cornice of the main building. An interesting clock tower of medium height gives distinction and finish to the whole design. Following the Southern custom, low arcades connect the main structure with a one-story wing on each side. The large hall or auditorium, which is located at the rear of the main building, has its own entrance at the end. Stairways connect this rear entrance, which is on the grade level, with the hall above. The Colonial details of this entrance are unusually interesting, showing three entrance doors between four tall engaged columns, which, together



Basement



First Floor

FORUM SPECIFICATION AND DATA SHEET— 69

Town Hall, Dover, Mass.; Kilham, Hopkins & Greeley, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class, or slow-burning.

EXTERIOR MATERIALS:
Brick and stone.

ROOF:
Slate.

WINDOWS:
Wood frame and sashes, double-hung.

FLOORS:
Concrete in basement; wood elsewhere.

HEATING:
Steam.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Arkansas pine.

INTERIOR WALL FINISH:
Smooth plaster.

DECORATIVE TREATMENT:
Walls and woodwork painted.

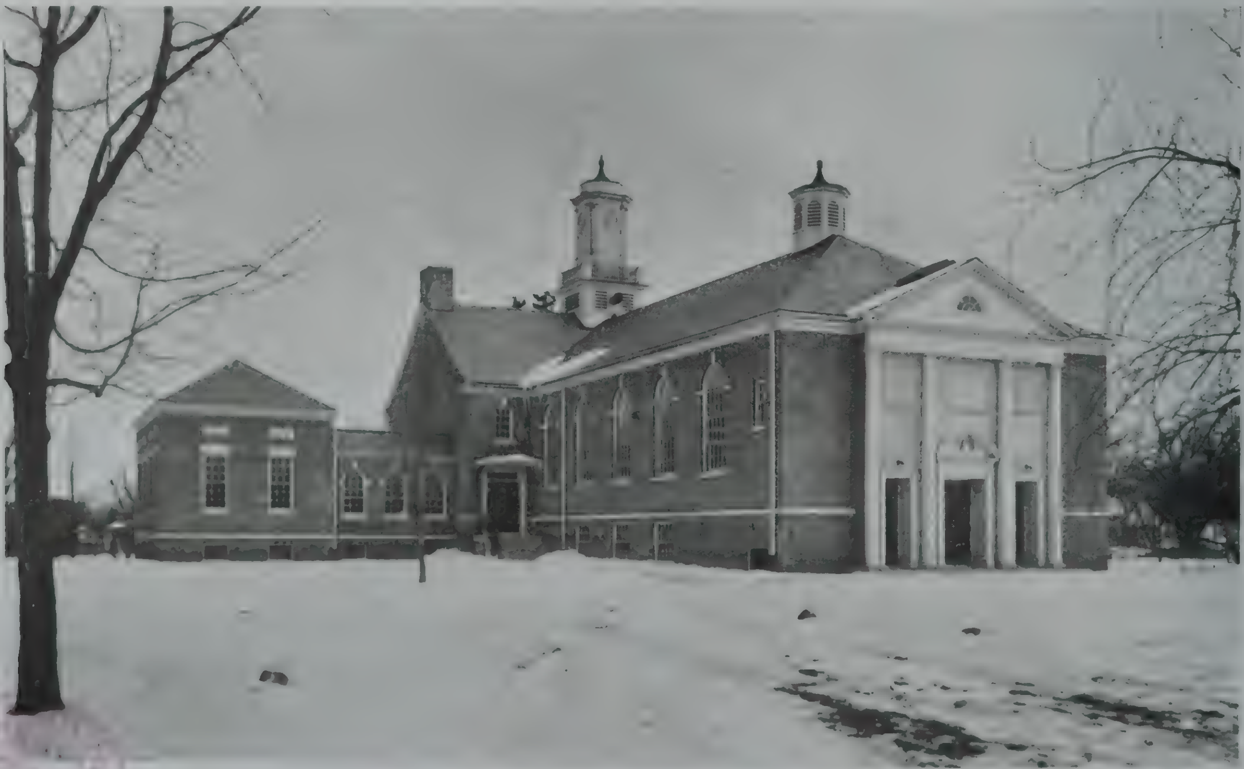
APPROXIMATE CUBIC FOOTAGE:
241,359.

COST PER CUBIC FOOT:
33 cents.

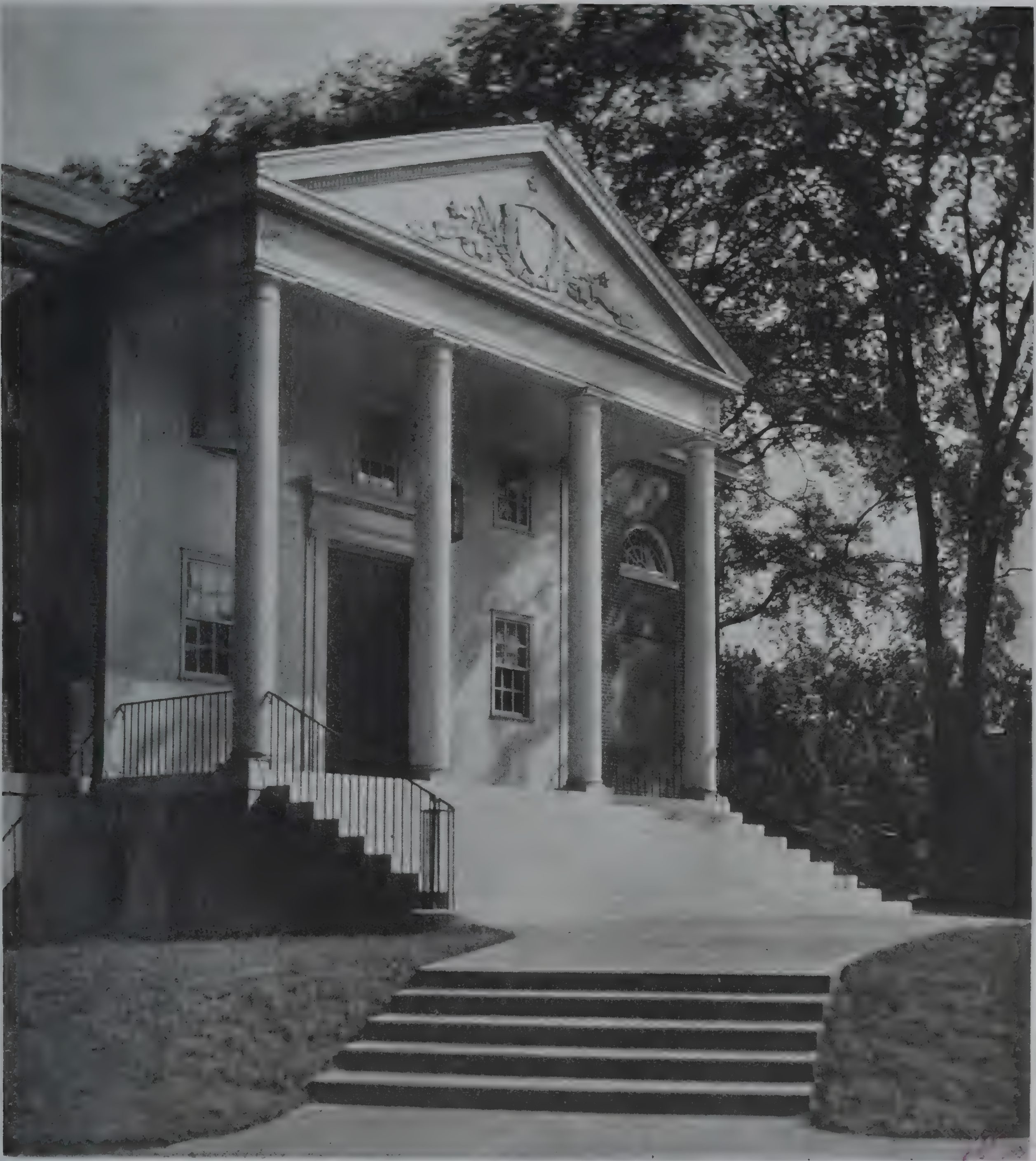
DATE OF COMPLETION:
July 1, 1922.

with a high entablature and pediment, form the architectural treatment of this rear entrance to the building and directly into the assembly room.

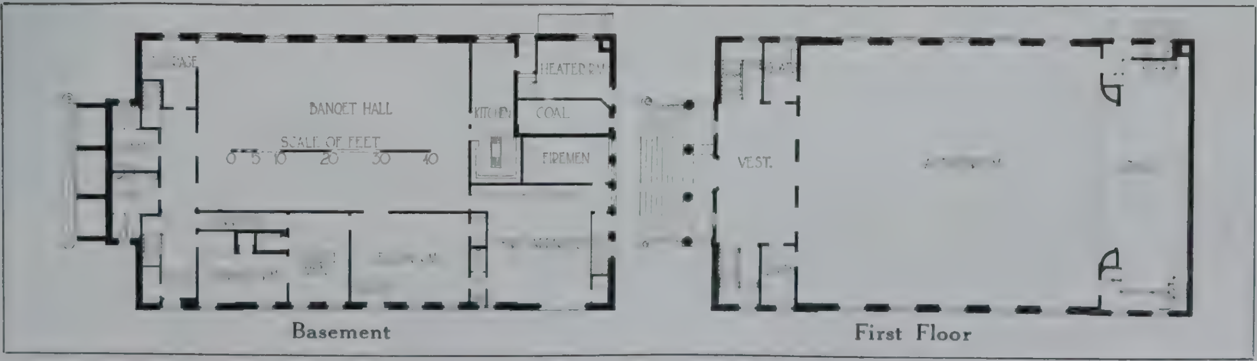
The plan, which is laid out in the shape of the letter T, is logical and well arranged. Entering through the main front portico, a center lobby is reached, on each side of which are offices for town officials. In the left wing of the building is located a library with its stack room, while in the right wing are additional offices for town officials. The center lobby opens directly into the large hall or auditorium, at one end of which is a deep stage with stairways to the basement for the actors in stage performances as well as for the public. The basement plan shows another hall under the auditorium, low in ceiling height but equal in area. In the basement are also located a dining room and kitchen, coat room and lavatories, a boiler and coal room and one cell. The total omission of cells in most cases, and introduction in other town halls of only one or two, lead one to realize how much less crime exists in the country than in the city, requiring but little in the way of jails.



Rear View Showing the Auditorium Wing



TOWN HALL, KENNEBUNK, MAINE
J. D. LELAND AND COMPANY, ARCHITECTS



Basement

First Floor

FORUM SPECIFICATION AND DATA SHEET— 70

Town Hall, Kennebunk, Maine; J. D. Leland and Company, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and wood, slow-burning.

EXTERIOR MATERIALS:
Brick with limestone and wood trim.

ROOF:
Slate.

WINDOWS:
Wood frame and sash, double-hung.

FLOORS:
Granolithic and wood.

HEATING:
Steam.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood and ash.

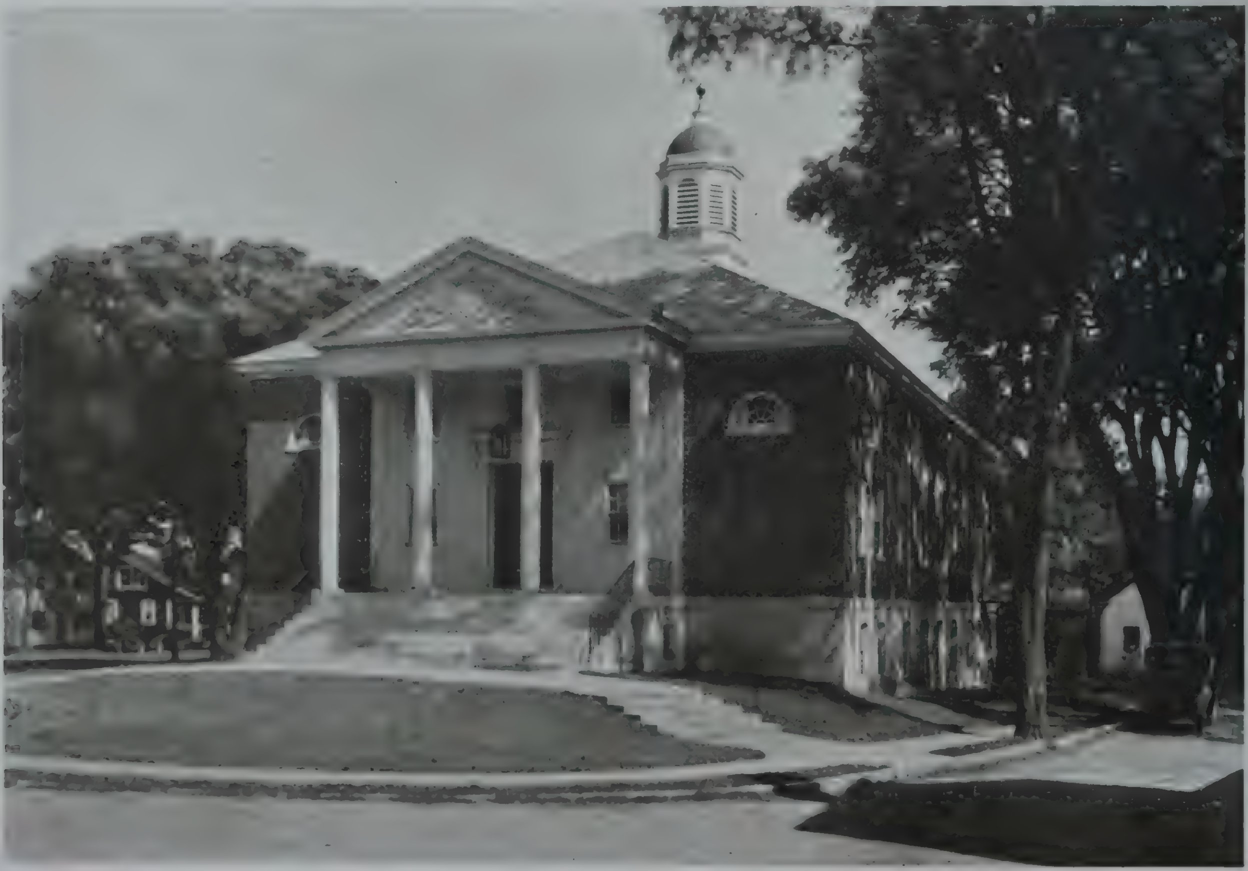
INTERIOR WALL FINISH:
Smooth plaster.

DECORATIVE TREATMENT:
Walls and trim painted.

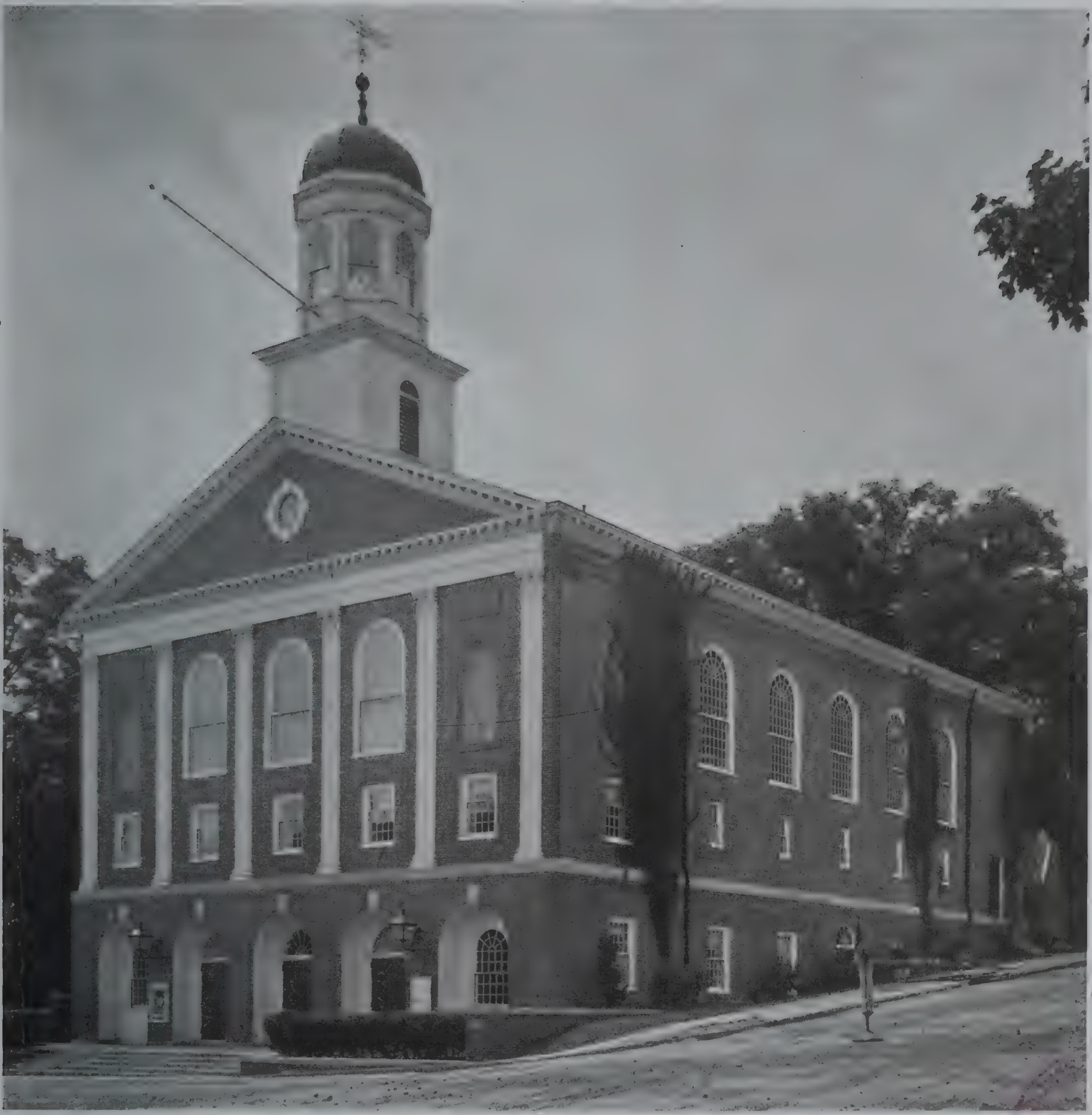
DATE OF COMPLETION:
June 1, 1922.

IT is a rather interesting fact that in New England are found most of the best examples of town hall architecture, the great majority of which are successful adaptations of the Colonial style. It is only natural that in designing town halls for New England communities, architects should go back to the best Colonial precedents for their inspiration; not that there were many town halls of any size or importance built in Colonial times, as usually the meeting house was used for all community gatherings.

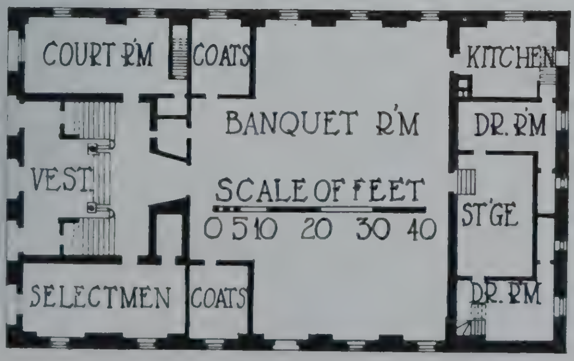
This town hall in Kennebunk is unusually appropriate in design for the old Maine town which it serves. A rectangular building, with an imposing approach of terraced lawn and broad steps, is entered through a fine Colonial portico of free-standing Doric columns supporting a simple entablature and high pediment. In the center of the pediment is a richly carved decoration showing the coat of arms and motto of the State of Maine, thus relieving the rich severity of the Town Hall's exterior.



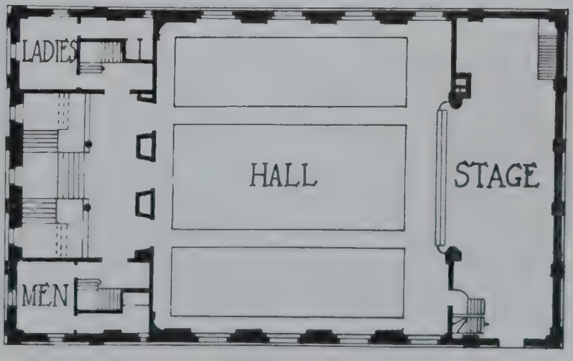
General View of the Town Hall, Kennebunk, Maine



TOWN HOUSE, PETERBORO, N. H.
LITTLE & RUSSELL, ARCHITECTS



Ground Floor



Main Floor

FORUM SPECIFICATION AND DATA SHEET— 71

Town House, Peterboro, N. H.; Little & Russell, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second class, slow-burning.

EXTERIOR MATERIALS:
Brick with limestone and wood trim.

ROOF:
Green slate.

WINDOWS:
Sash and frame, double-hung, wood.

FLOORS:
Marble throughout.

HEATING:
Steam.

INTERIOR MILL WORK:
Pine.

INTERIOR WALL FINISH:
Plaster.

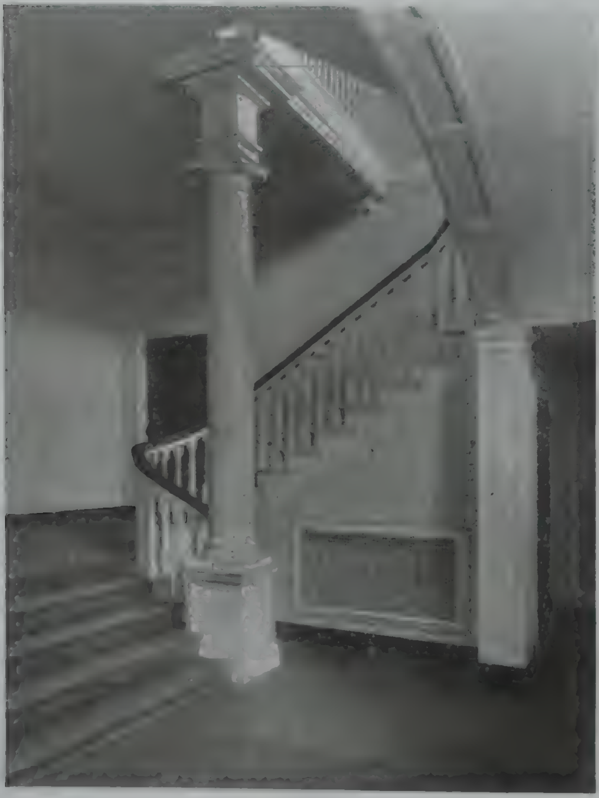
DECORATIVE TREATMENT:
Woodwork painted white, and walls gray. Stair hall and auditorium have white paneled wainscot.

APPROXIMATE CUBIC FOOTAGE:
340,000.

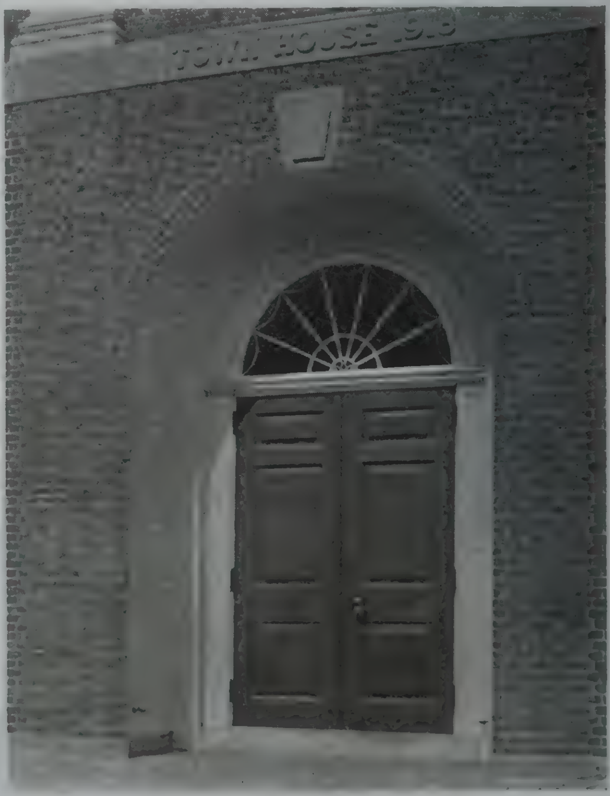
COST PER CUBIC FOOT:
23 cents.

YEAR OF COMPLETION:
1918.

SUGGESTING in its general mass and proportions old Faneuil Hall in Boston, this town house at Peterboro has a distinct and sober dignity worthy of its New England antecedents. Built of brick with limestone trim, the design shows a compact, rectangular building, the entrance front of which is emphasized and distinguished by a pilaster colonnade in the Corinthian order resting on a broad belt course, below which five deeply recessed archways provide the necessary openings for three spacious entrance doors and two arched windows. These doorways lead through a vestibule to a dignified double staircase, which gives access to the large public assembly hall on the second floor. This hall is provided with a stage, coat rooms and lavatories for men and women, and a deep balcony across the entrance end. On the ground floor are located small rooms for the local court and the selectmen, as well as a large banquet room, beyond which are dressing rooms, which connect by stairs with the stage, and a kitchen. It will thus be seen that the greater part of the building is planned for large community gatherings and entertainments. This building is justly regarded as being one of the best of an important class.



Entrance Hall



Entrance Door

INTERIOR ARCHITECTURE

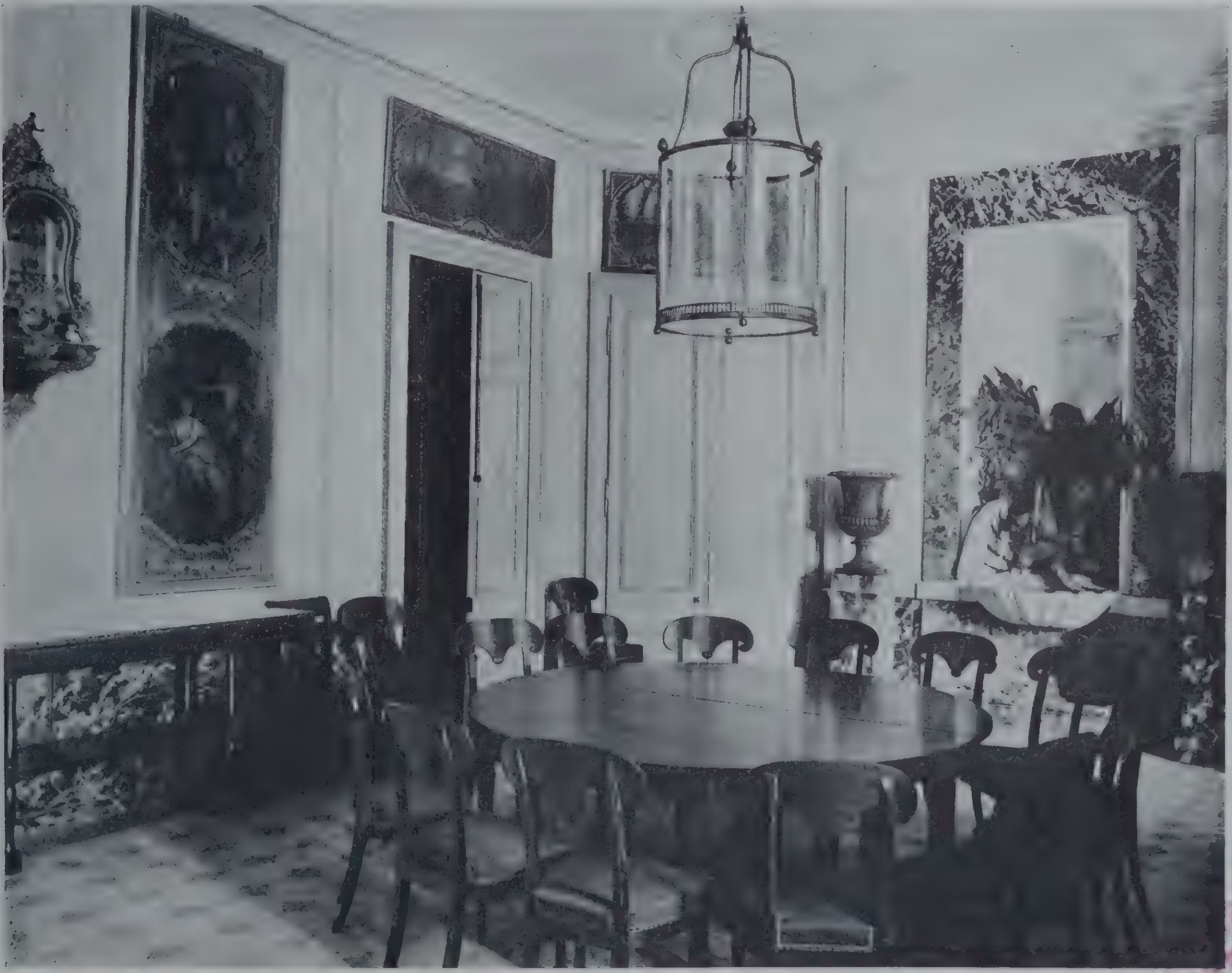
Dining Room in Napoleon's Apartments at Fontainebleau

By C. HAMILTON PRESTON

ON the ground floor of the Palace of Fontainebleau and adjacent to the main entrance (distinguished by the imposing horseshoe staircase, of Du Cerceau), is found the suite of rooms reserved by Napoleon as the intimate apartments of himself and the Empress Josephine. It is a vast, imposing suite, of which the subject of our sketch served ordinarily as the dining room.

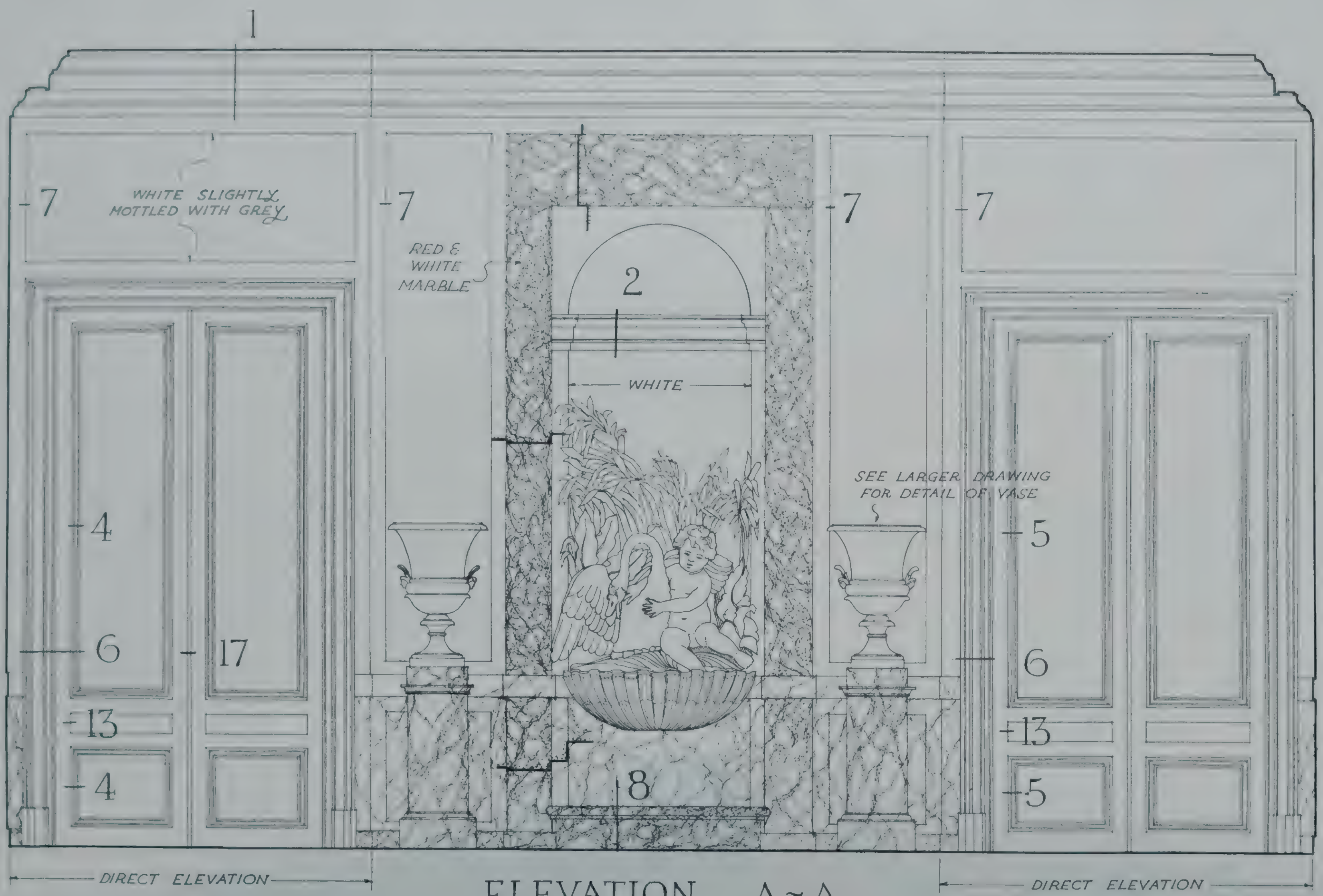
The plan of the room is rectangular, with the far corners cut off at an angle of 45 degrees, and doors are placed on these angles. The floor of octagonal and square design, with borders, is of black and white marble, the units being large enough in scale to lend great dignity to the room. The walls are marbleized in light gray with darker mottlings, the dado being carried around in rose and white marble.

But the really imposing feature of the room is the beautiful niche at the far end. The flat, broad architrave is of the same rose and white marble as the dado. The inside of the niche itself is a dead white, in sharp contrast to the architrave. Set into this niche is the loveliest of fountains, a shell of cream marble holding the justly celebrated bronze boy and swan with a background of reeds. On either side of this niche are marble pedestals surmounted by bronze vases of rarest workmanship, elaborately decorated with emblems and trophies of war. The niche, flanked by these two pedestals with vases, forms an incomparable composition, giving to the room a distinction rarely to be seen. This room has great possibilities, as to design and color, as an inspiration and precedent to present-day designers.



Napoleon's Dining Room at Fontainebleau, As It Appears Today

PUBLIC LIBRARY



ELEVATION A~A

Scale $\frac{3}{8}$" = 1 Foot

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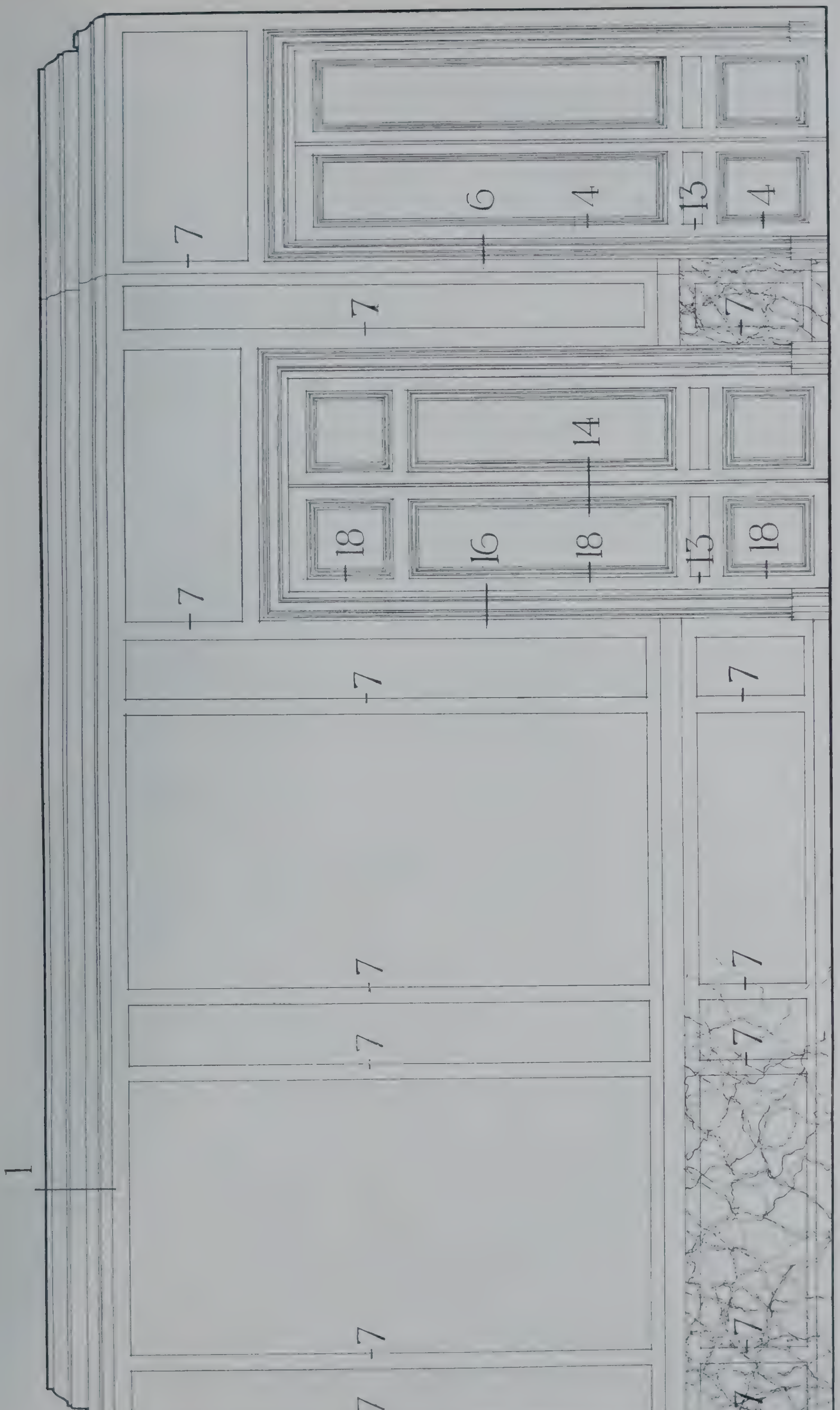

ELEVATION D~D

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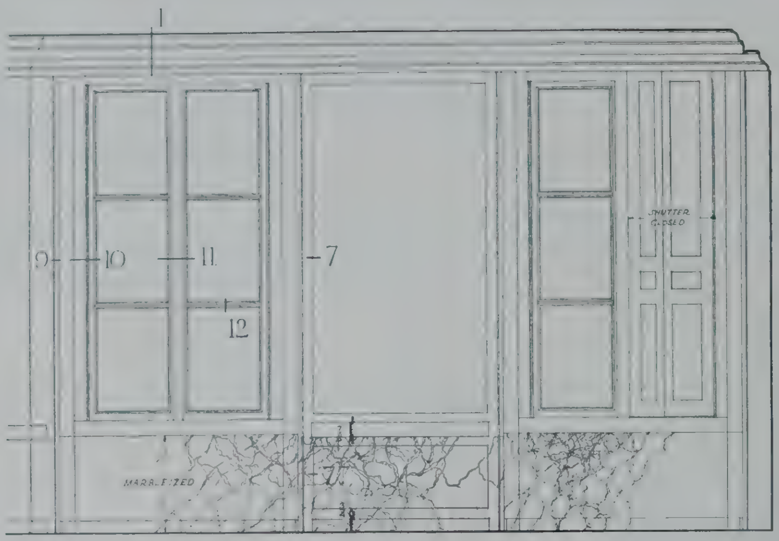
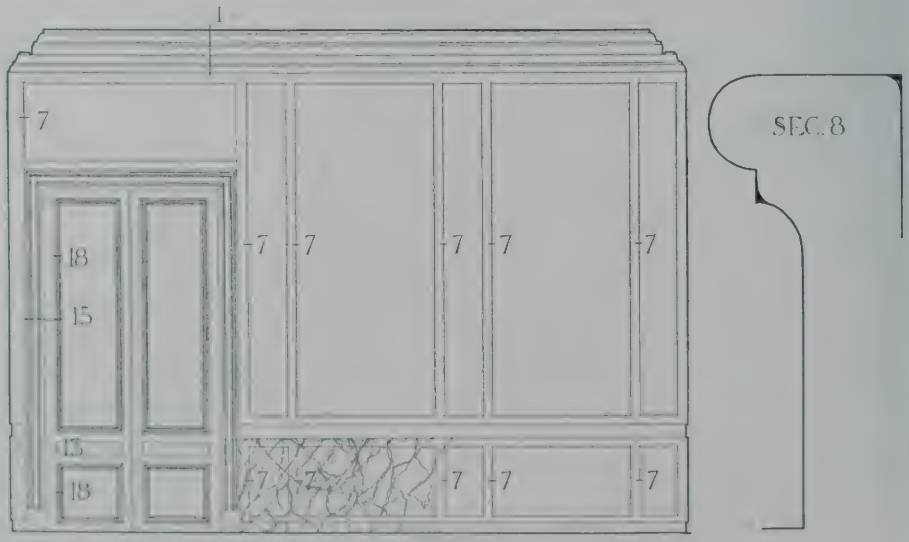


ELEVATION B~B
Scale $\frac{3}{16}$" = 1 Foot



ELEVATION C~C
Scale $\frac{3}{16}$" = 1 Foot

DINING ROOM
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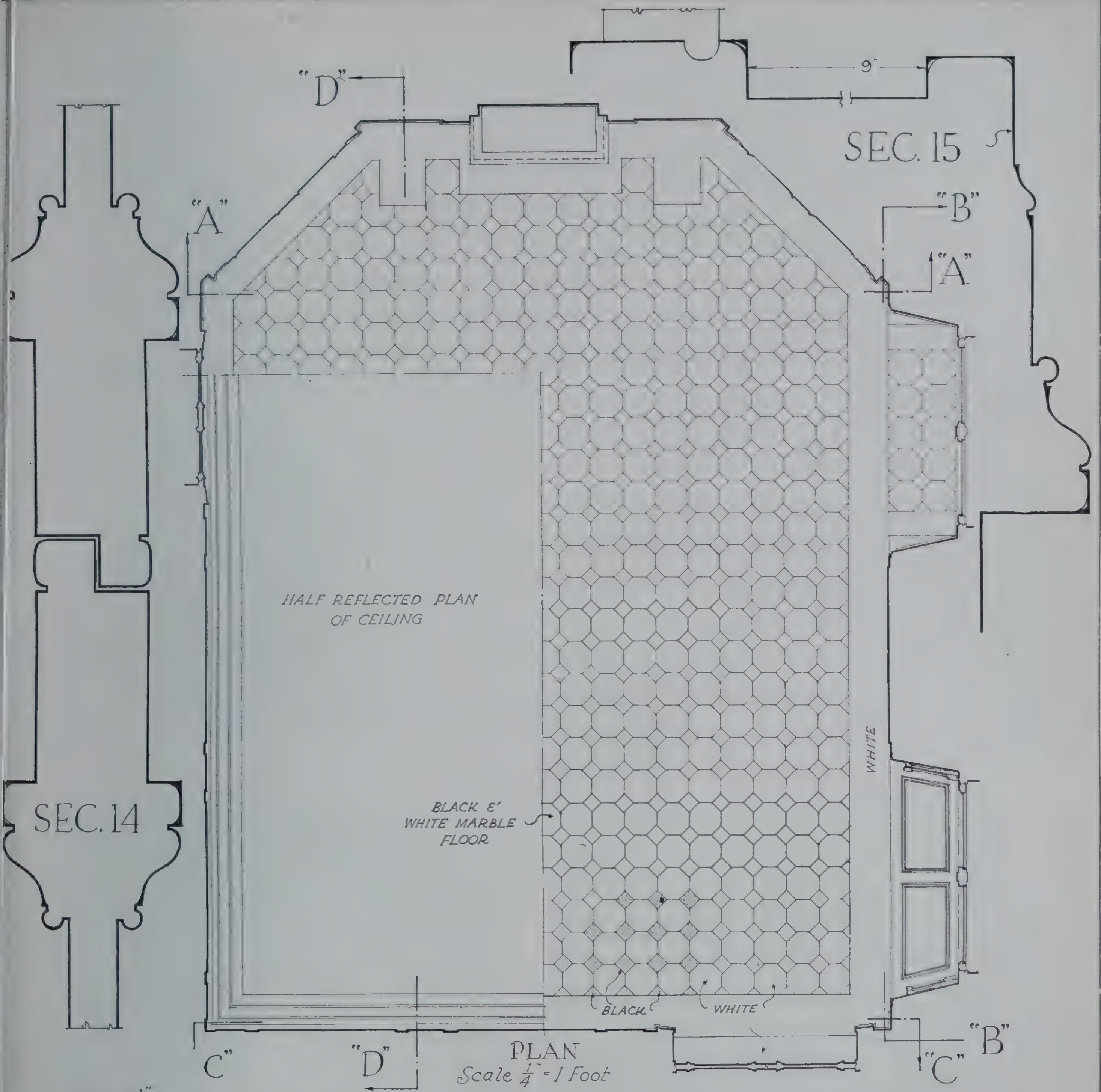

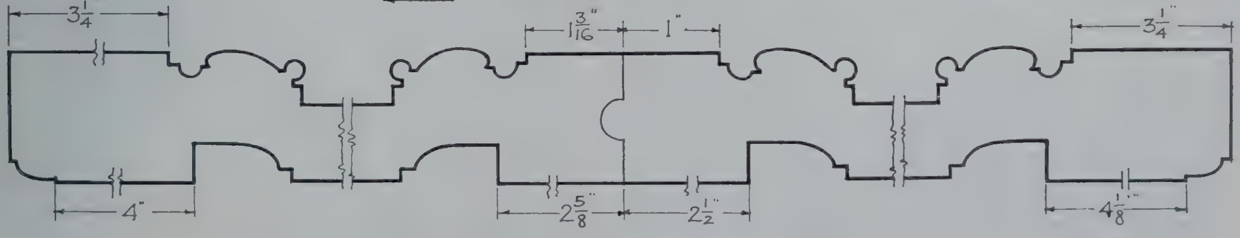

SECTION THRU SHUTTERS

DETAILS

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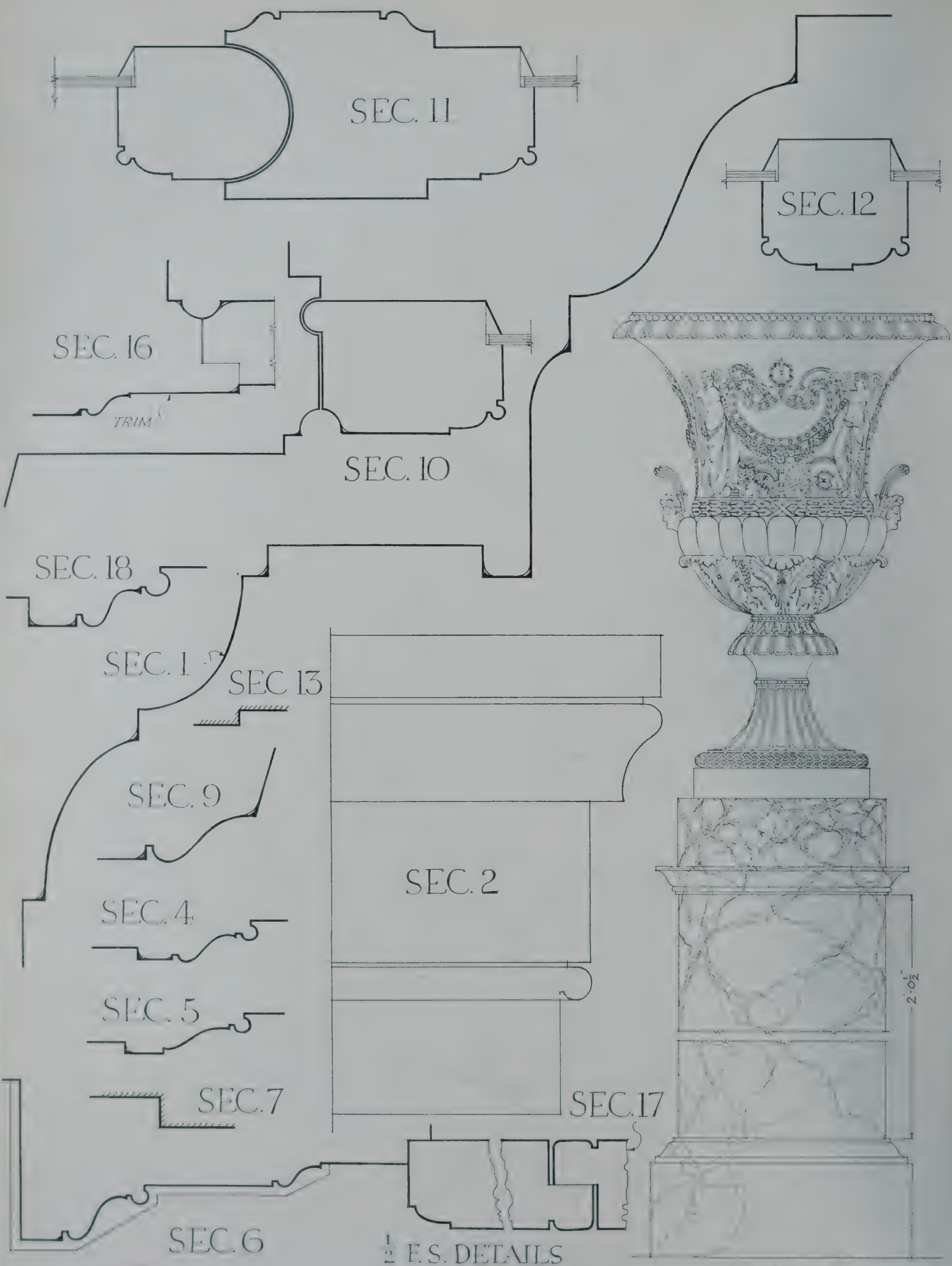

½ F. S. DETAILS
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*ELEVATION
OF VASE
Scale 1½"-1 Foot*

DECORATION & FURNITURE

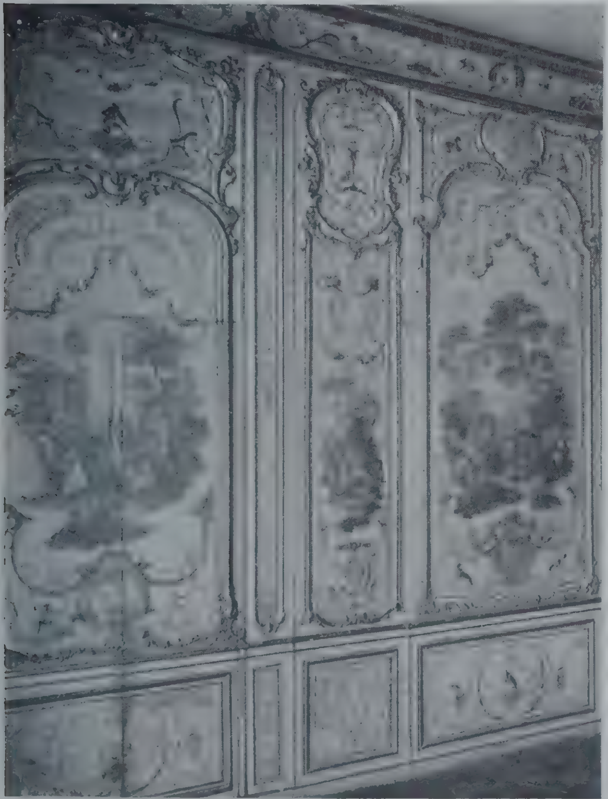
Decorative Walls and Backgrounds

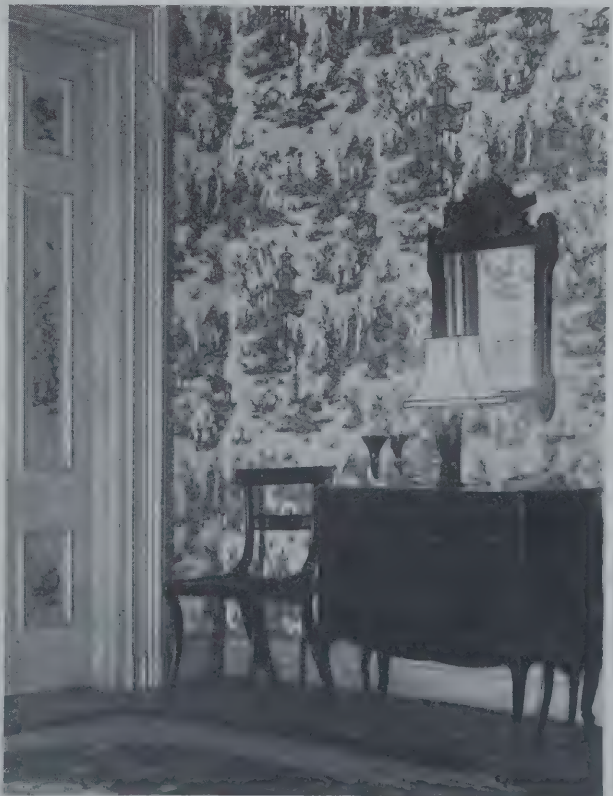
By PIERRE DUTEL

IF at least one room in every home could be set aside in which to feature a background in some interesting manner, how delightful it would be! Rooms are like people, and should be individual in their character. The average person today prefers a painted wall as a background against which to arrange the furniture. This may be interesting as to its color value, but a wall carrying a design will make a more pleasing background and add a note of interest to the complete ensemble for which one works. In France there are many delightful examples of decorative walls to encourage emulation elsewhere.

Picture the effect of a small boudoir or salon paneled in wood that has been painted in some soft pastel shade and rubbed down until it has the texture of chalk. The panels may be divided into smaller sections and lined with gilt or color, and their centers treated with pastoral scenes of country life, such as shepherds and milkmaids posed against shrubs and trees with sheep and cattle about them. Again one may find walls decorated with pictures of monkeys and birds, or of people dressed in Chinese costume after the *Chinoiserie* manner, which became the fashion during the Louis Quinze period. During the Directoire and late Louis Seize eras, wallpapers came into prominence. These were at first used by the country people and the middle class, but by the close of the eighteenth century the character of the design had reached such perfection that wallpapers were the fashion, so that no house of any importance was considered complete unless it possessed a series of scenic papers. Then began wallpaper's progress.

Boucher, who was one of the noted artists of the time of both the Regency and Louis XV periods, painted many delightful decorations as well as the portraits and paintings for which he is best known. Among his works were designs for screens, furniture and china, as well as cartoons for silk and tapestry designs that were executed by the Gobelins. There is a house still existing near the Sorbonne which at one time belonged to Demarteau, who was an engraver for Boucher. As a note of respect to


A detail showing the decorated walls in the Imprimerie Nationale by Huet. The carving of the old boiseries is gilded, and the panels are enriched with scenes of Chinese life. Furniture, architecture, and the design of clothes and materials all showed oriental feeling at the time

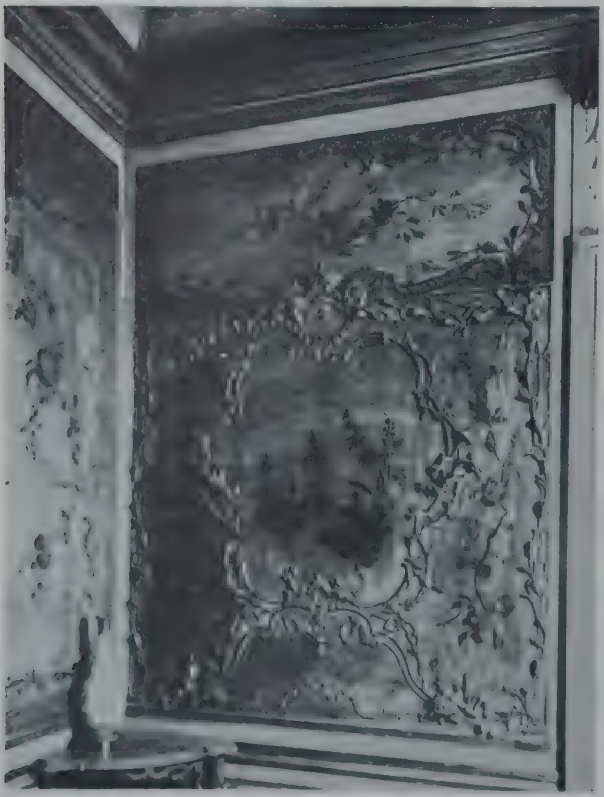

Toile de Jouy papers make pleasing backgrounds for modern interiors. This has a decoration of Chinese pagodas and gardens in lacquer, red on a dull cream ground. The panels of the doors are decorated in keeping with the character of the wallpaper

his master and teacher, Boucher, he at one time undertook to paint the drawing room in a series of delightful designs and decorations. The walls were painted with trellis work that framed the doors and window trim on which roses and plants appeared to be growing. Panels between the trellises were designed to show vistas of garden scenes with fountains playing, while above the doors and windows decorations consisting of fat, chubby cupids and birds were painted. The cupids were shown drinking from goblets, squeezing juice from fruits, and feeding doves and other birds, subjects given decorative interest.

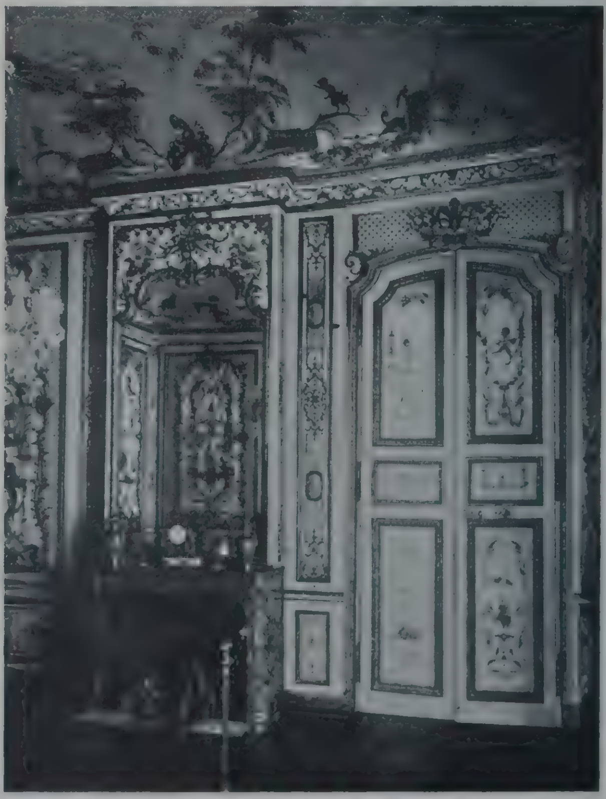
When the vogue for painted papers had reached its height, there was no house of importance in Paris that did not possess at least one room with its walls covered with this material. Some of these papers were first brought from China by the Dutch and Portuguese traders and are poems in themselves.

I am thinking of a delightful design that might be worked out today for a foyer hall in either a house or an apartment. The walls could be painted in silver or gold leaf and glazed a rich yellow. Upon this dazzling background a series of panels could be planned, showing scenes from India. These could consist of a procession of elephants and horses and natives in state with swaying palm trees in brilliant shades of rich green. The purplish browns and russet shades found in the elephants' colorings and the richness of the trappings could make a marvelous design. A painted wainscot of marbleized wood, about 2 feet high, with a tiled floor or a substitute in linoleum, would make an effective background for any furniture. Small rooms adapt themselves well to decorative wall treatments in either paper or painted decoration. The elevator in a private house I recently visited had a delightful and amusing design painted on its walls. The lower part of the walls was paneled in wood, above which to the ceiling canvas had been stretched and held in place with narrow mouldings. The canvas was painted with marine scenes showing ships in full sail upon a choppy sea. This was executed in a sketchy, rather crude, but amusing manner. A sailor who had fallen overboard was being pursued by a shark, while his fellow mates were trying desperately to come to his rescue. A lighthouse and one or two fishing shacks and a distant horizon completed the picture. A ship lantern had been wired for electricity and suspended from the ceiling, which was painted in blue and yellow stripes like an awning, a composition of great interest.

A dressing room may be decorated in an elaborate or a simple manner, according to one's taste or pocketbook. If the room is large enough, the corners may be cut off and converted into closets. The doors may be paneled with mirrors, on the under sides of which (before they are silvered) decorations such as scrolls and arabesques in terra cotta and gold may be painted against the silver of the mirror. The walls may be painted in violet over a silver coat of aluminum, in which case the woodwork and trim of the doors and closets should be painted violet and marbleized with veins in a deeper tone to harmonize with the walls, treatment which will supply rich architectural character and strong decorative interest.



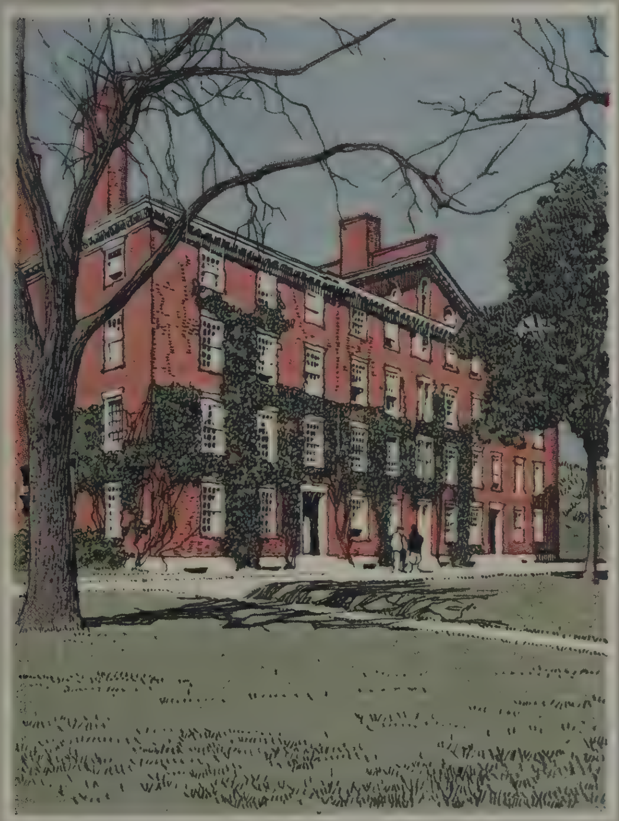
A corner of a room in the Musee Carnavalet. Its Chinese yellow walls and gilt decorations in carved wood show amusing designs painted by Pillement



Wall treatment of the Salon des Singes in the Musee, Chantilly, shows elaborate decorations in gold and color. A characteristic example of the Louis XV style

F.a.#

THE ARCHITECTURAL FORUM



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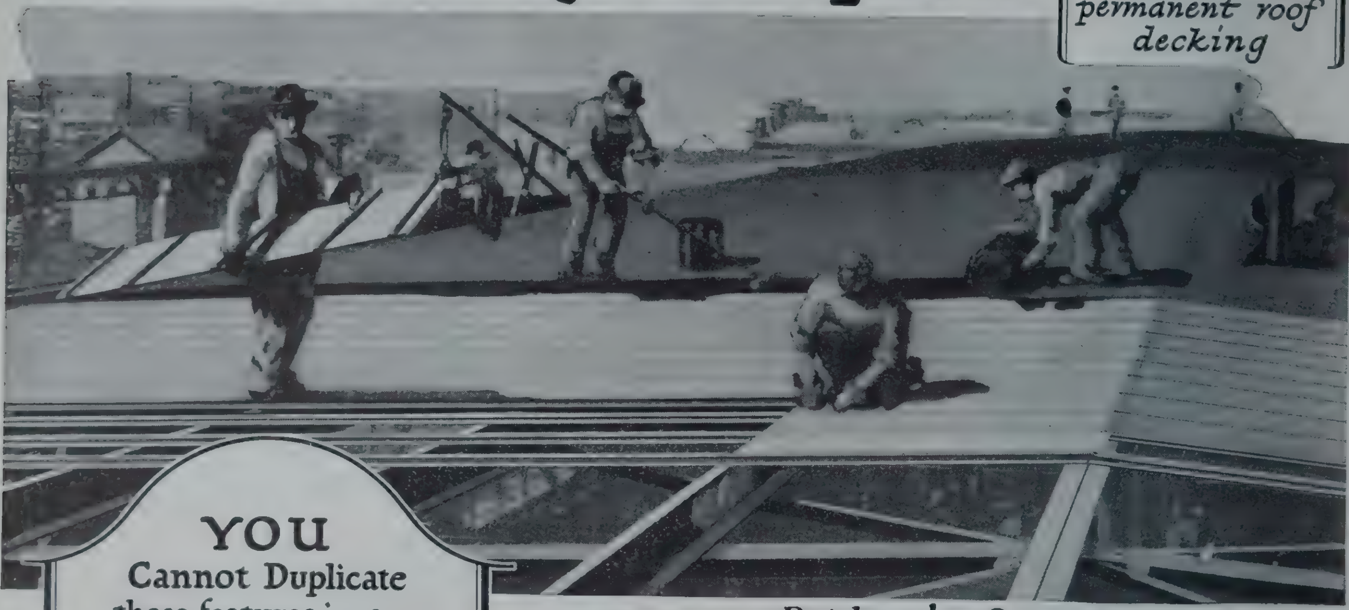

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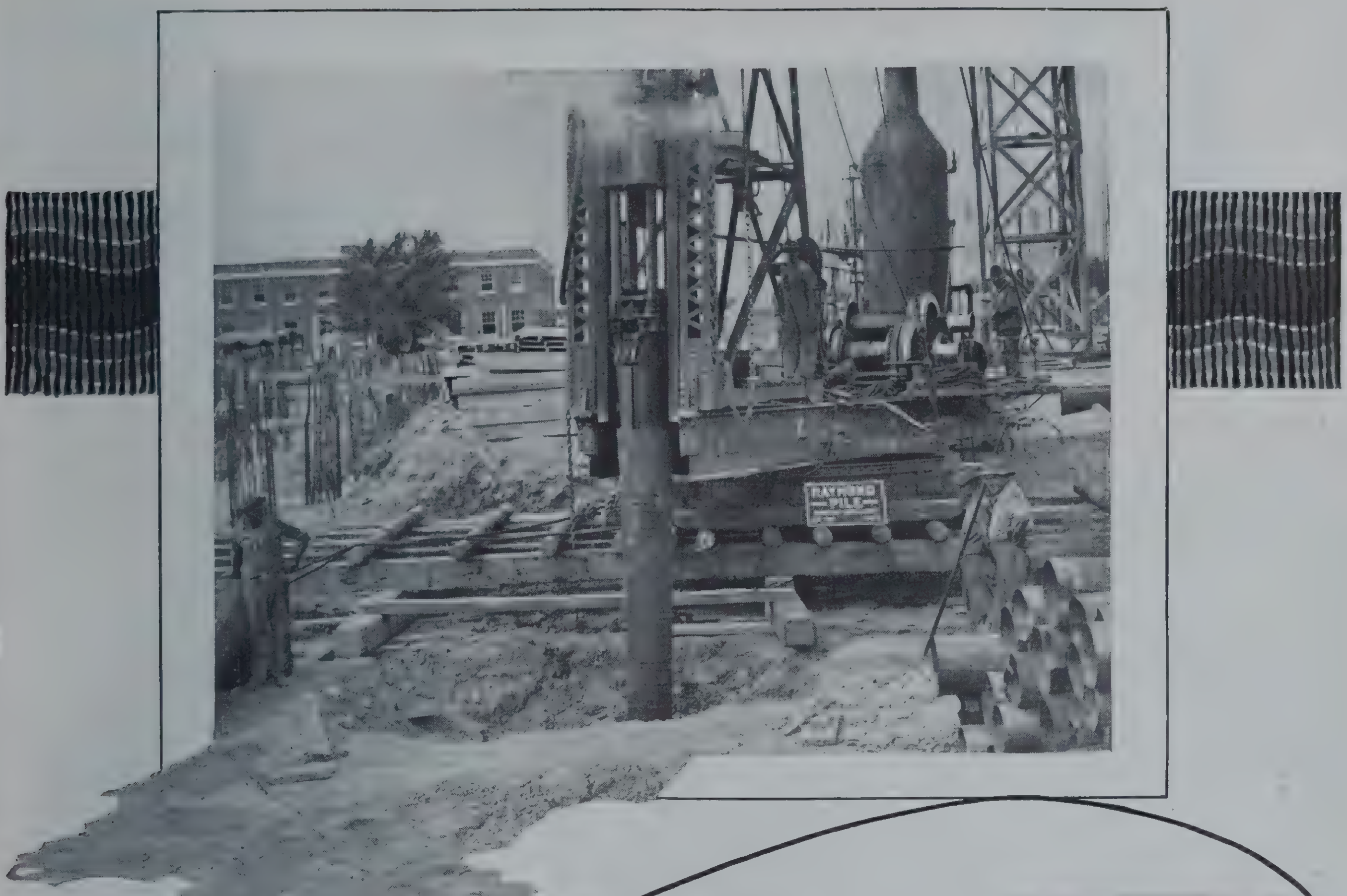

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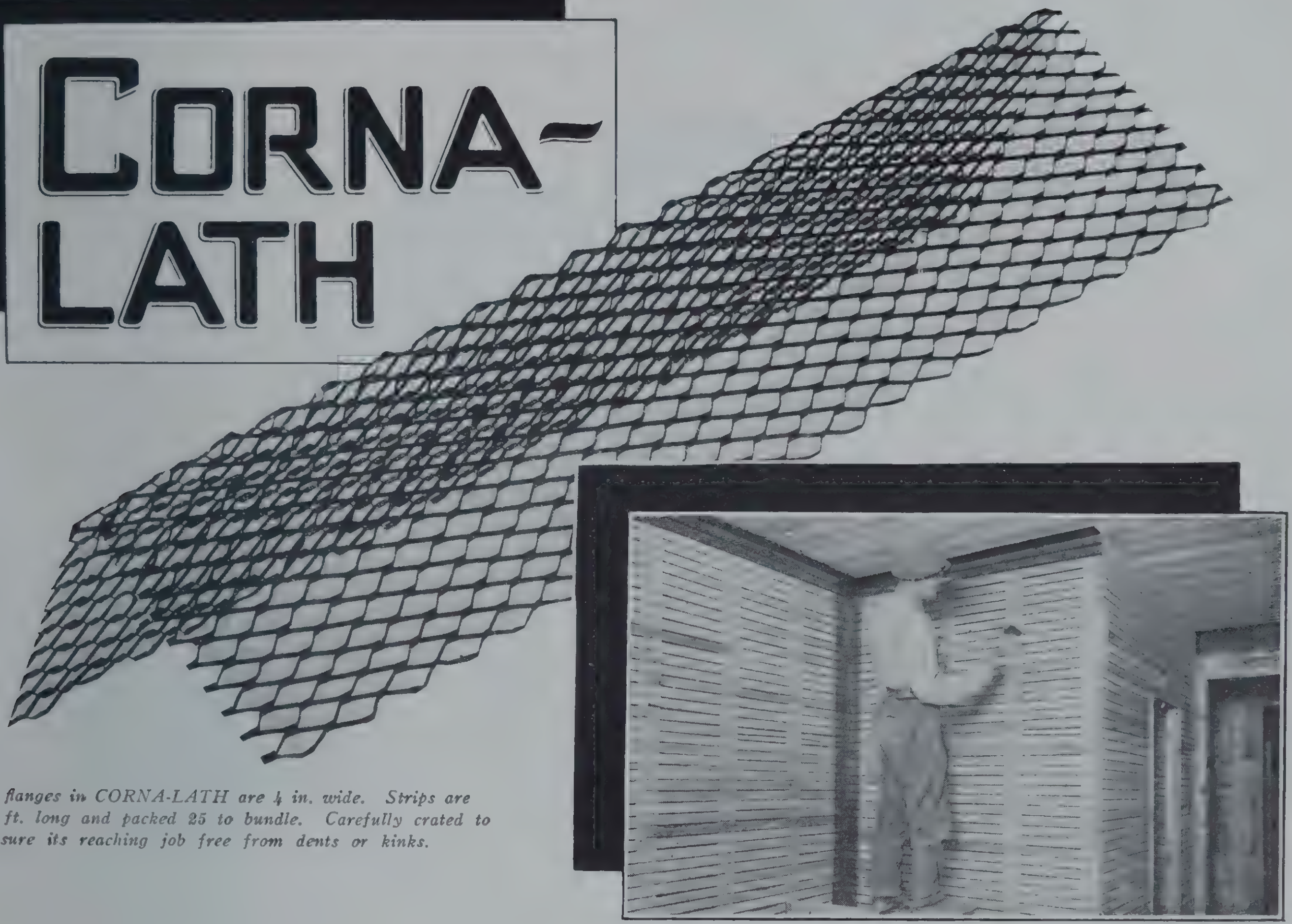

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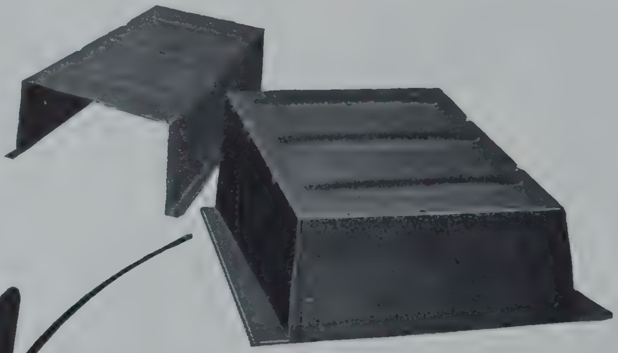

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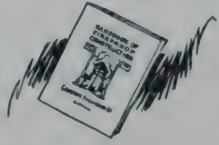

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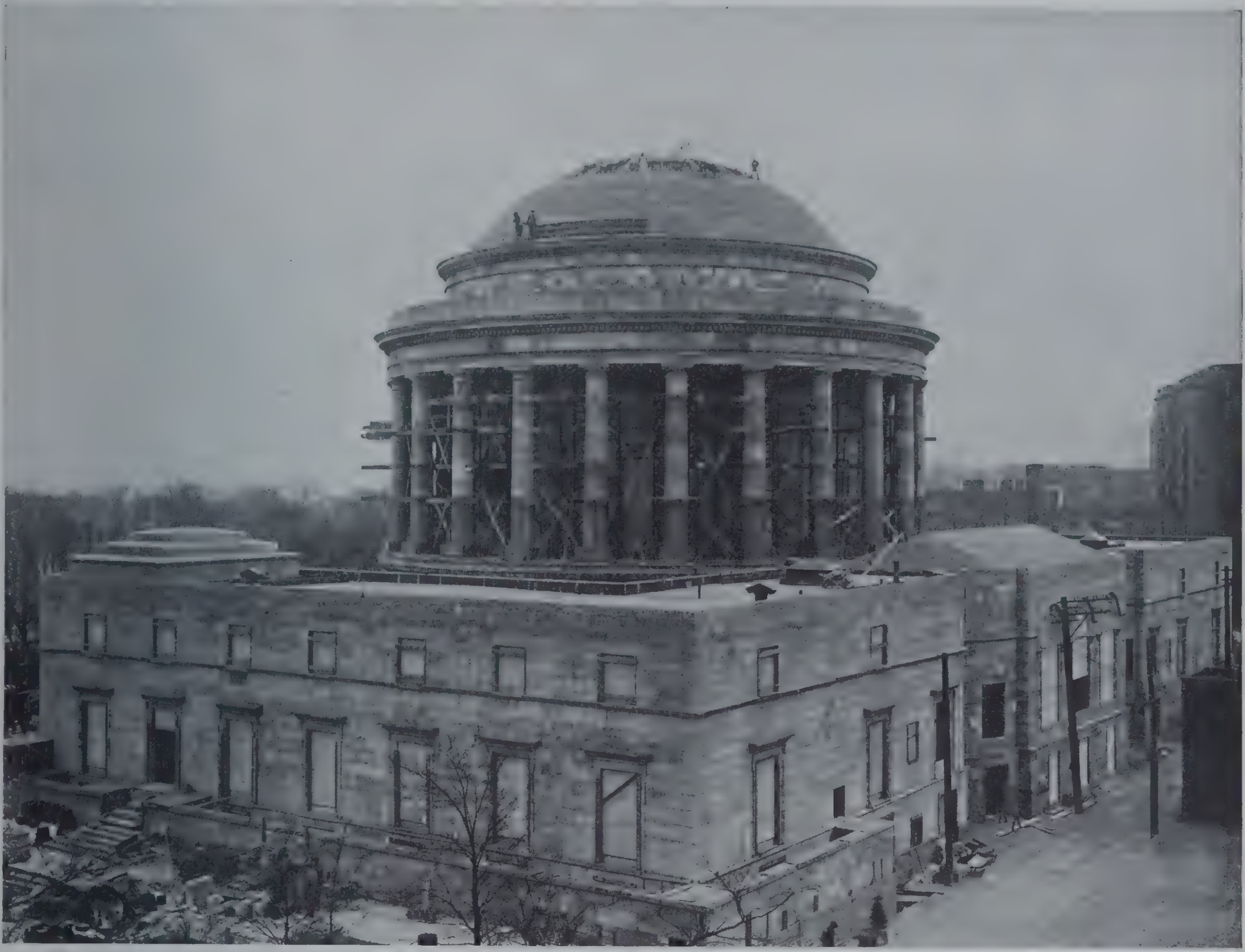

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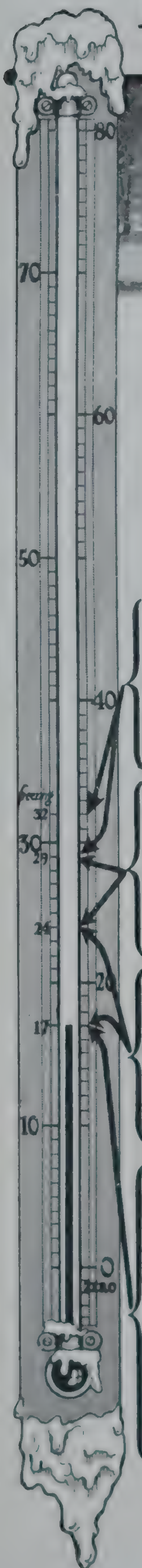

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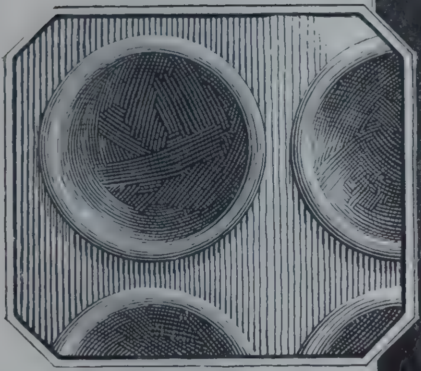

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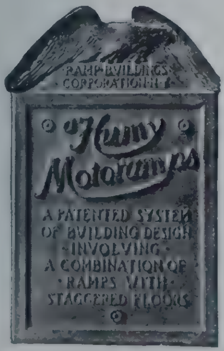
For a building now in use, the needful garage can be erected nearby or adjoining. And where the local building code permits no alternative, this separation may also be necessary in the case of a new apartment house or other building.

There is a distinct tendency, however, to provide garage floors integral with the principal structure. Automobile storage can be relegated to the rear or poorly lighted portion of the building—and can make profitable use of basement space. We have information on several typical buildings that can be sent on request.

In developing owner interest in multi-floor garage construction, our Bulletin "F" "Building Garages for Profitable Operation" will be helpful. Shall we send you a copy?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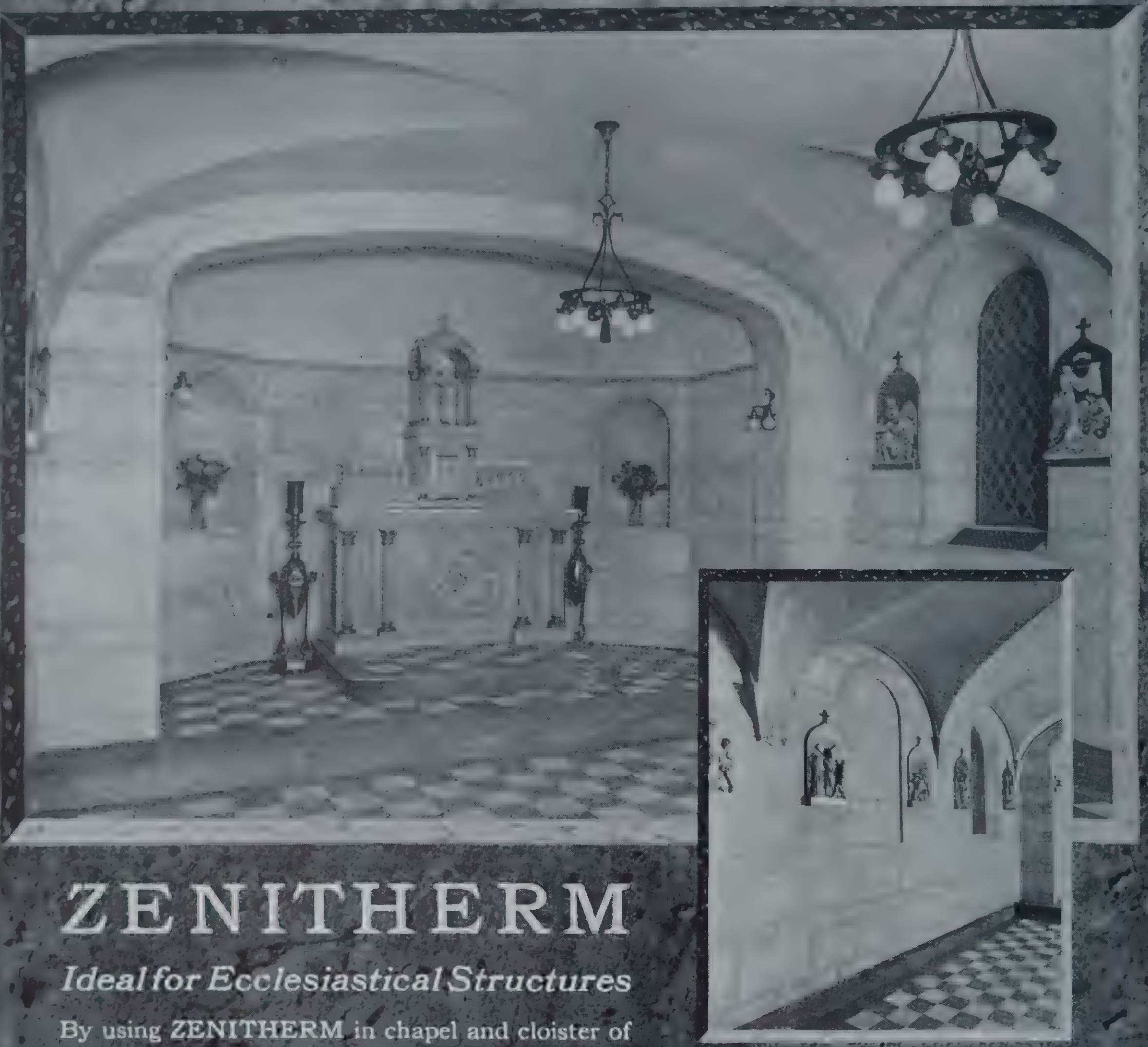

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Architect:
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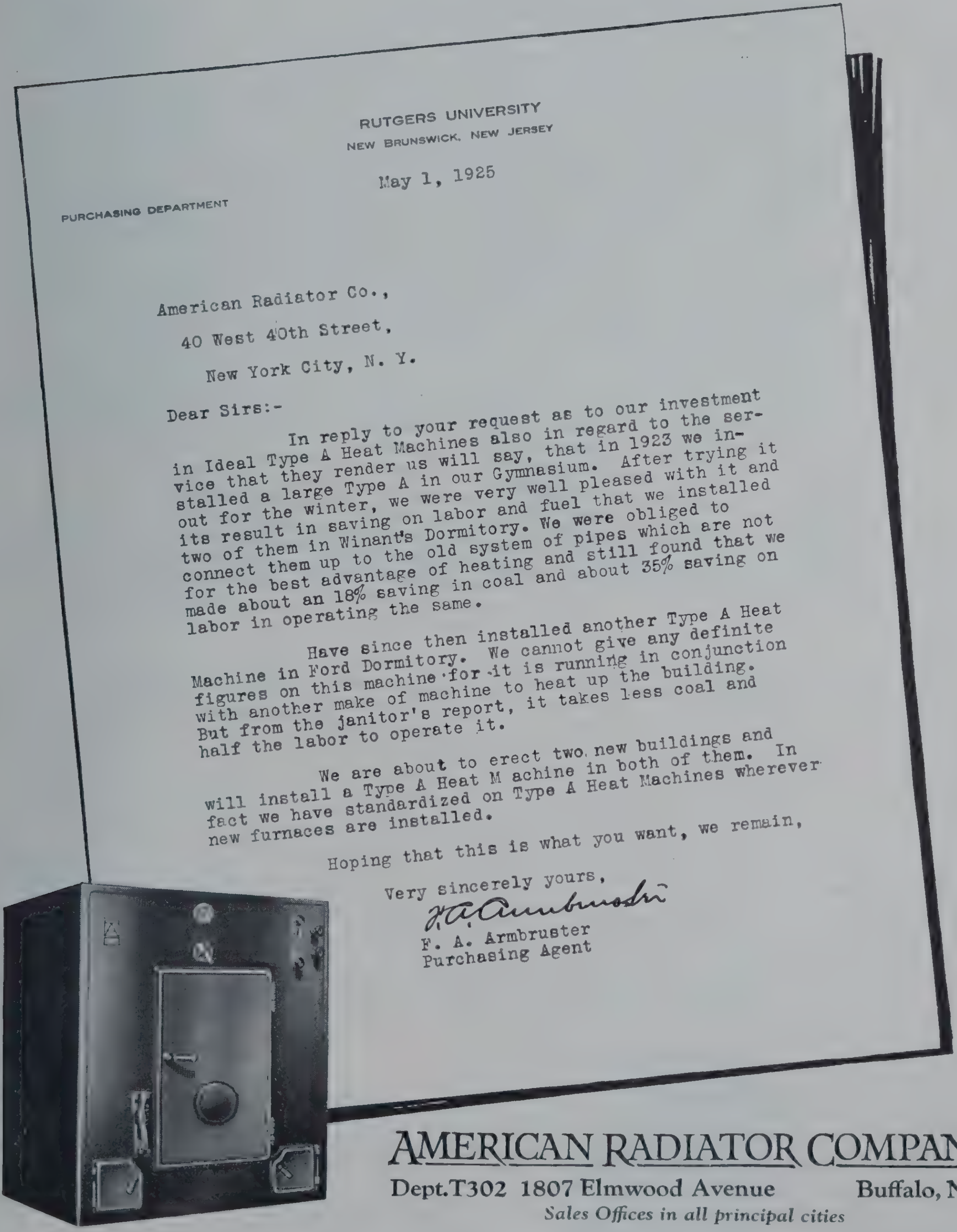

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May 1, 1925

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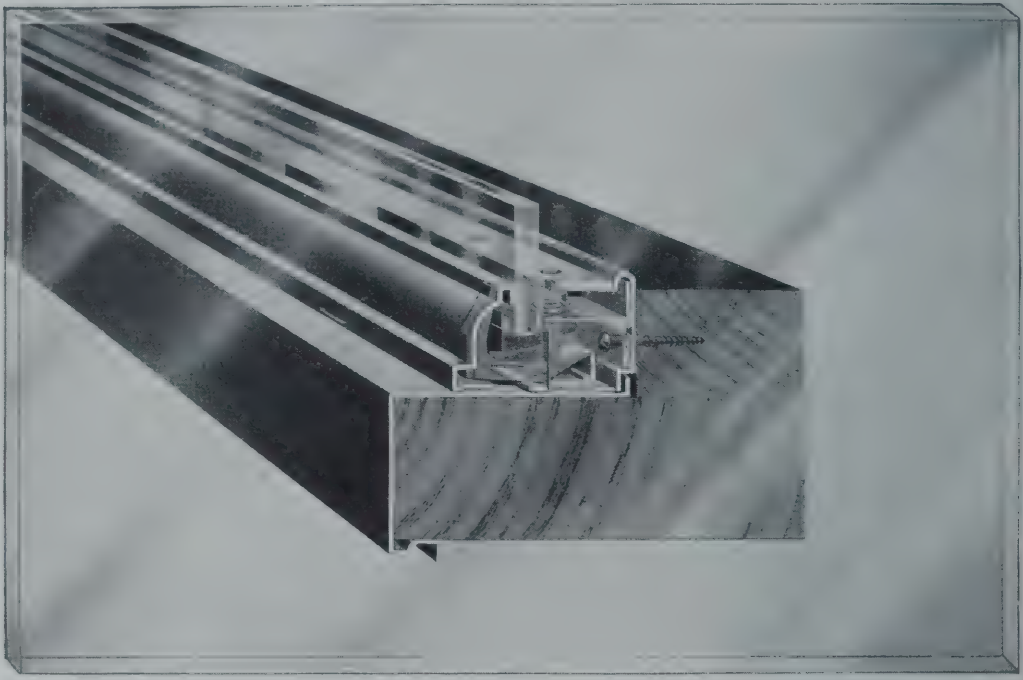

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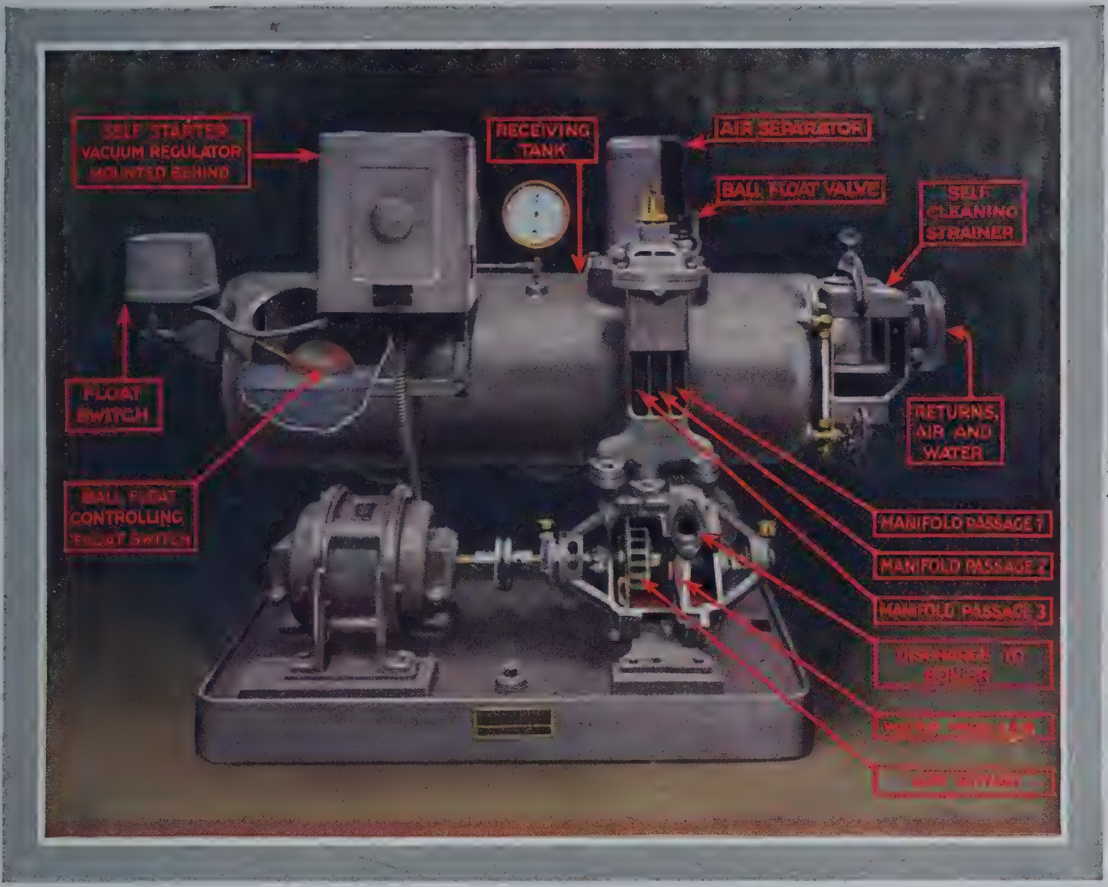

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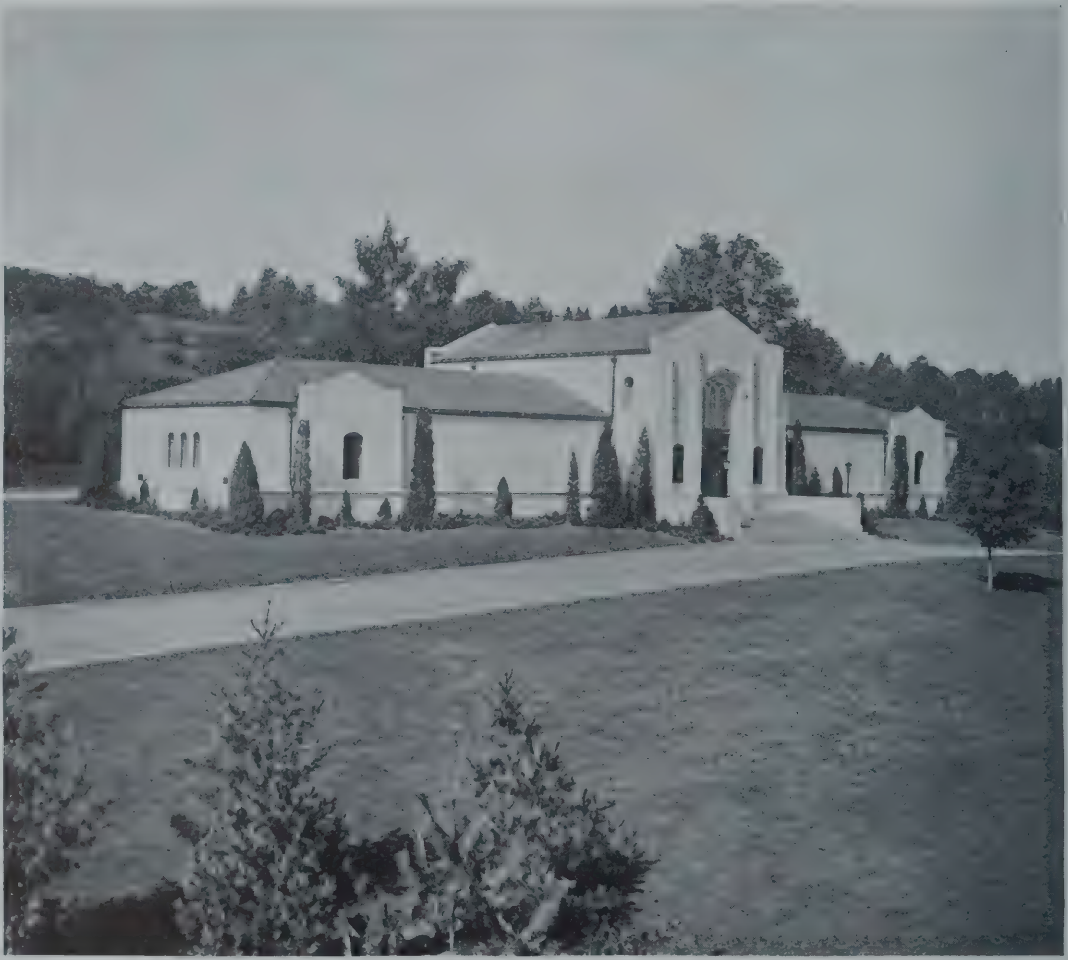

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Isaac F. Marcosson, in the SATURDAY EVENING POST, Sept. 5, 1925

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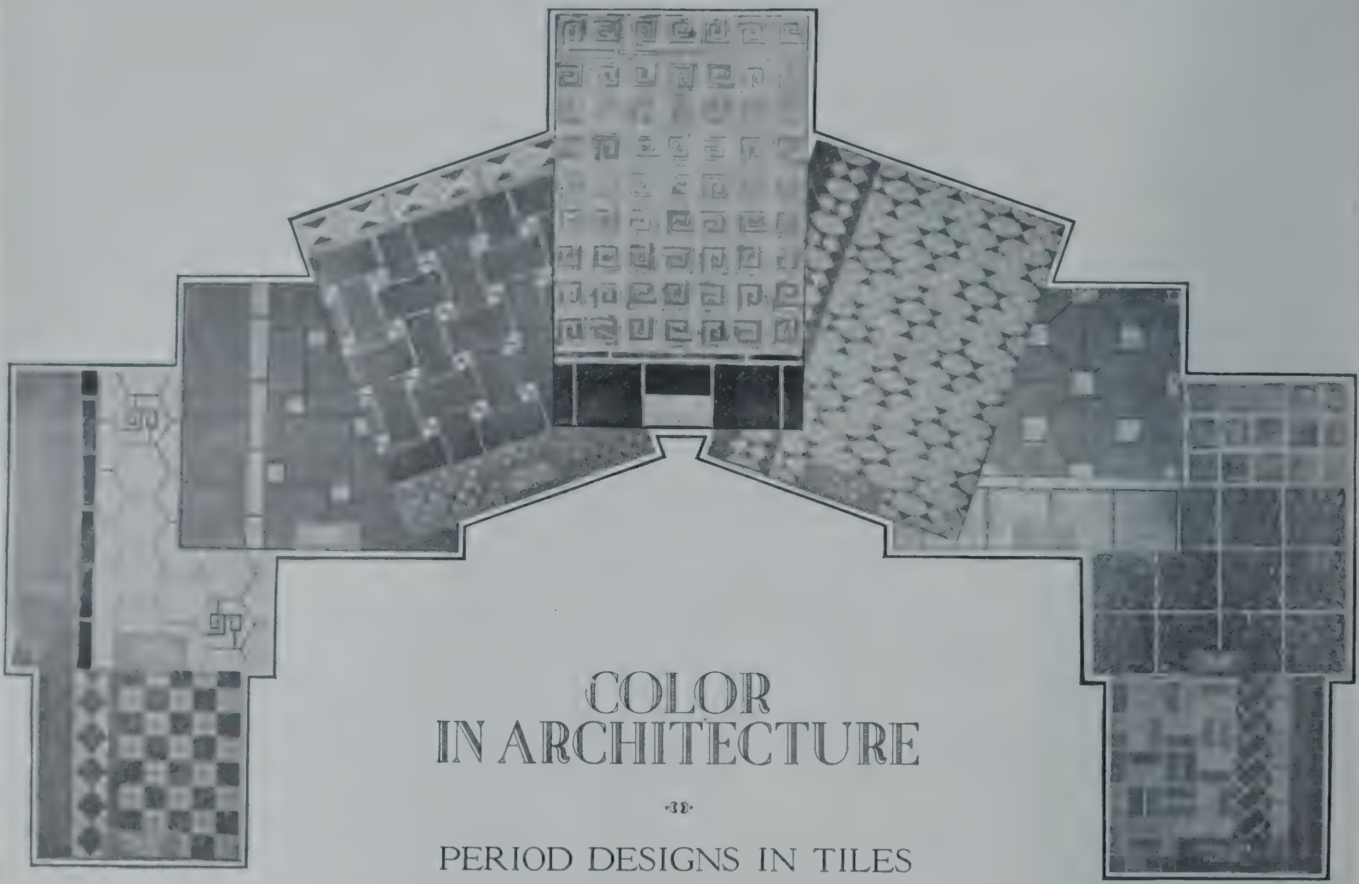

COLOR IN ARCHITECTURE

PERIOD DESIGNS IN TILES

IN a series of twelve brief preachments we have set forth the breadth of appeal, the wonder and beauty, and the variety of application that COLOR IN ARCHITECTURE presents. Our citations and examples have been drawn from sources as widely flung as ancient Mexico of the Aztecs and predynastic Egypt, as peerless Greece and sunny Spain. In all ages and times, in all countries and climes the appeal of COLOR has ever been potent and inspiring. In concluding this series we would remind the ARCHITECT of the myriad expressions of COLOR IN ARCHITECTURE possible in that peerless medium of *permanent color* —BEAUTIFUL TILES.

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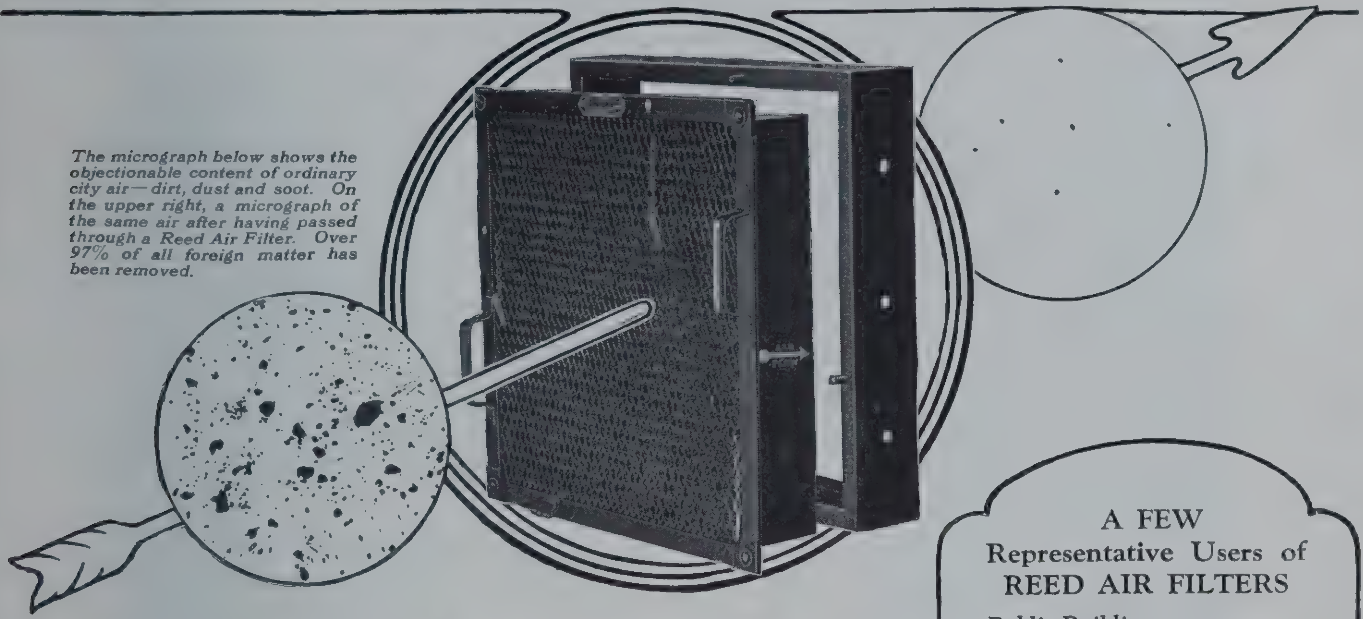

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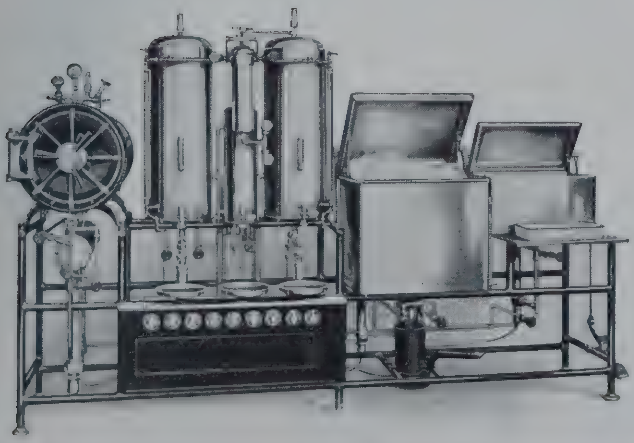
It is an authoritative encyclopaedia instead of a mere listing of sterilizers spotted with paragraphs of strong praise. Send for a copy.



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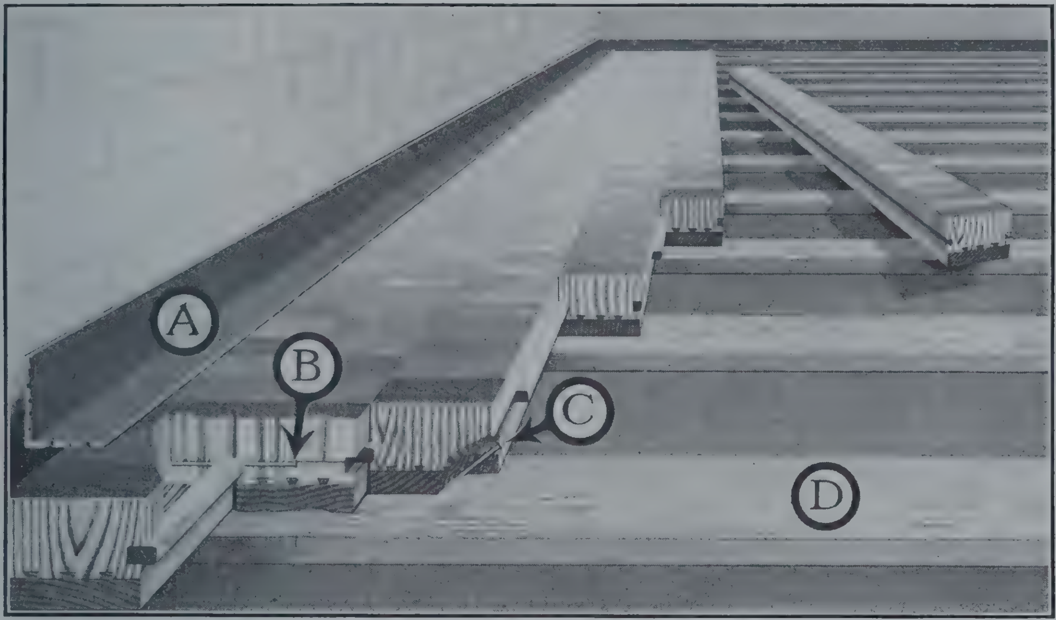

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for Gymnasiums, Drill Rooms, Auditoriums

A Angle iron covers expansion opening and serves as wall protector. Quarter Round or O. G. Mold may be used in lieu of angle iron.

B Bloxonend sections (approximating 8 ft. lengths) broken to illustrate lateral nailing. Provided with special nails in countersunk bores ready for driving.

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D Floor strips recommended only when maximum resilence required. Ordinarily Bloxonend is laid directly over concrete by lateral nailing without sleepers.

The method of laying Bloxonend in gymnasiums, illustrated above, is recommended to those requiring maximum resiliency. However, Bloxonend is inherently resilient and floors laid *directly over concrete* by lateral nailing are entirely satisfactory to many architects, physical directors and athletes now using them.

In addition to resiliency, Bloxonend gives you every other quality you want in a gymnasium floor. It is bright, clean, attractive, exceptionally durable and while smooth always, it affords a firm, safe foothold minimizing falls and accidents.

Being end grain, Bloxonend cannot sliver—a safeguard worth providing. Plates used in anchoring gymnasium equipment easily and satisfactorily inserted.

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PARK AVENUE, NEW YORK—*Looking northwest from Sixty-first Street*

American Face Brick *Leads the World*

NOWHERE else as here in America have the color possibilities of brick for beautiful wall designs been so highly developed. Traveled foreigners are astonished and delighted with the results.

A correspondent of the Manchester Guardian, in an article entitled "The City of Wonderful Heights" (August 14, 1925) thus gives his impressions:

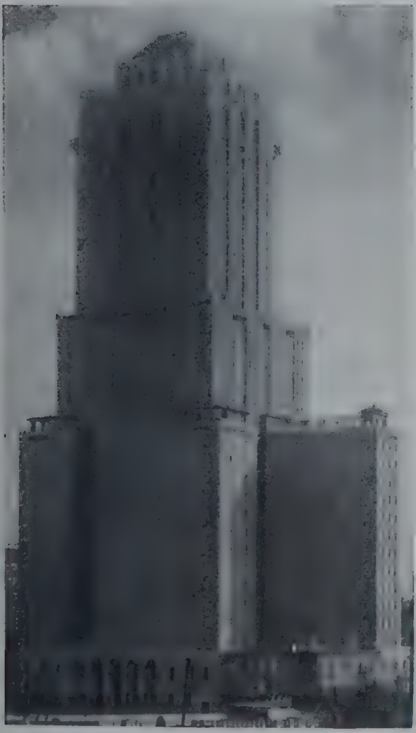
"Discriminating people had never told me that New York had so much beauty. The famous silhouette of New York did not impress me [possibly because I saw it first in a Scotch mist] so much as some individual buildings, notably the Shelton Hotel, and the gay, delicate handsomeness of Park Avenue and Lexington Avenue, with their charming brickwork. The newer the buildings the better in this happy city. The combinations of marble or Indiana stone and brick are usually simple and effective.

PARK AVENUE, NEW YORK
Looking southwest from Sixty-sixth Street

The American architects seem to have given themselves to the study of brick with characteristic closeness and intelligence, and everywhere one came on new signs of their mastery of the subject.

"Owing to the millions of bricks required for these vast buildings the architects and brick makers find it economically possible to co-operate to produce particular kinds of bricks, and as the bricks have no structural office in these steel-framed cages all sorts of devices can be used to give variety and quality to the surface; passages of slightly projecting bricks, bricks with the joints scraped out at the front leaving the brick edge open, and other devices for an enrichment by shadow of the huge brick surface. In many of the new buildings the influence seems to be Bologna, particularly in the intersecting arches forming a cornice and the use of projecting bricks. The addition of gargoyles, cartouches, and other separate enrichments high up on the face of the building are usually in perfect scale, suggesting careful experiment with models.

VANDERBILT AVENUE, NEW YORK
Looking northwest from Grand Central Station Viaduct


THE SHELTON HOTEL
Arthur Loomis Harmon, Architect

"The brick varies in color from an unsuccessful lemon white to deep red, with some particularly fine oatmeal tints in the later buildings that take the sunlight with a radiant sweetness. One had the ridiculous fancy about the Americans that after a generation of breakfast-food eaters the oats were now coming out in their architecture. In the clear, gay atmosphere of Manhattan these oatmeal palaces are delightful, even lovely at times, as they take the glow. [Why should our own new Regent Street not have been of brick?]" J. B.

EUROPE can show many fine examples of brickwork but these in no way compare in the scope of color and texture with the varied product our manufacturers offer.

In fact so great is this range that it really presents a new material to the American architect who is thus challenged to develop to the fullest possibilities this wonderful structural and artistic material.

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For the 80% of the interior that is exposed to the eye, specify Better Plastering on a metal base.

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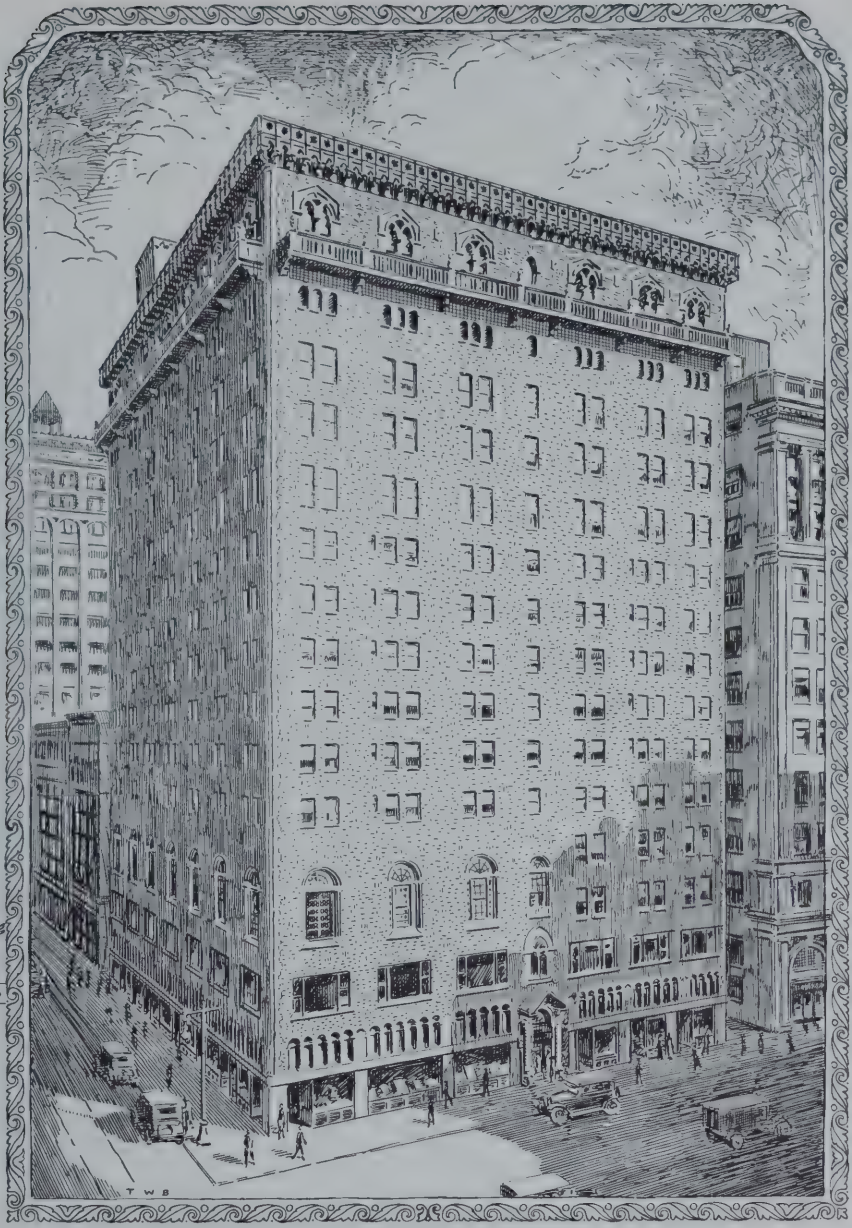
METAL LATH TO REINFORCE AND PRESERVE

For specification data, detail drawings and full information concerning styles, sizes and metals as related to hinges and butts, see
SWEET'S ARCHITECTURAL CATALOGUE
Pages 1338 to 1355
For garage hardware, see
Pages 1426 to 1431



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James Gamble Rogers
Architect

MUCH more than a startlingly beautiful group of buildings has been created here . . . an atmosphere, a mellow charm . . . a livableness . . . a proper setting for scholastic life. Sargent locks and hardware of solid wear-resisting brass and bronze are part and parcel of the plan. Harmoniously beautiful. Permanently quiet, smooth-working and secure.

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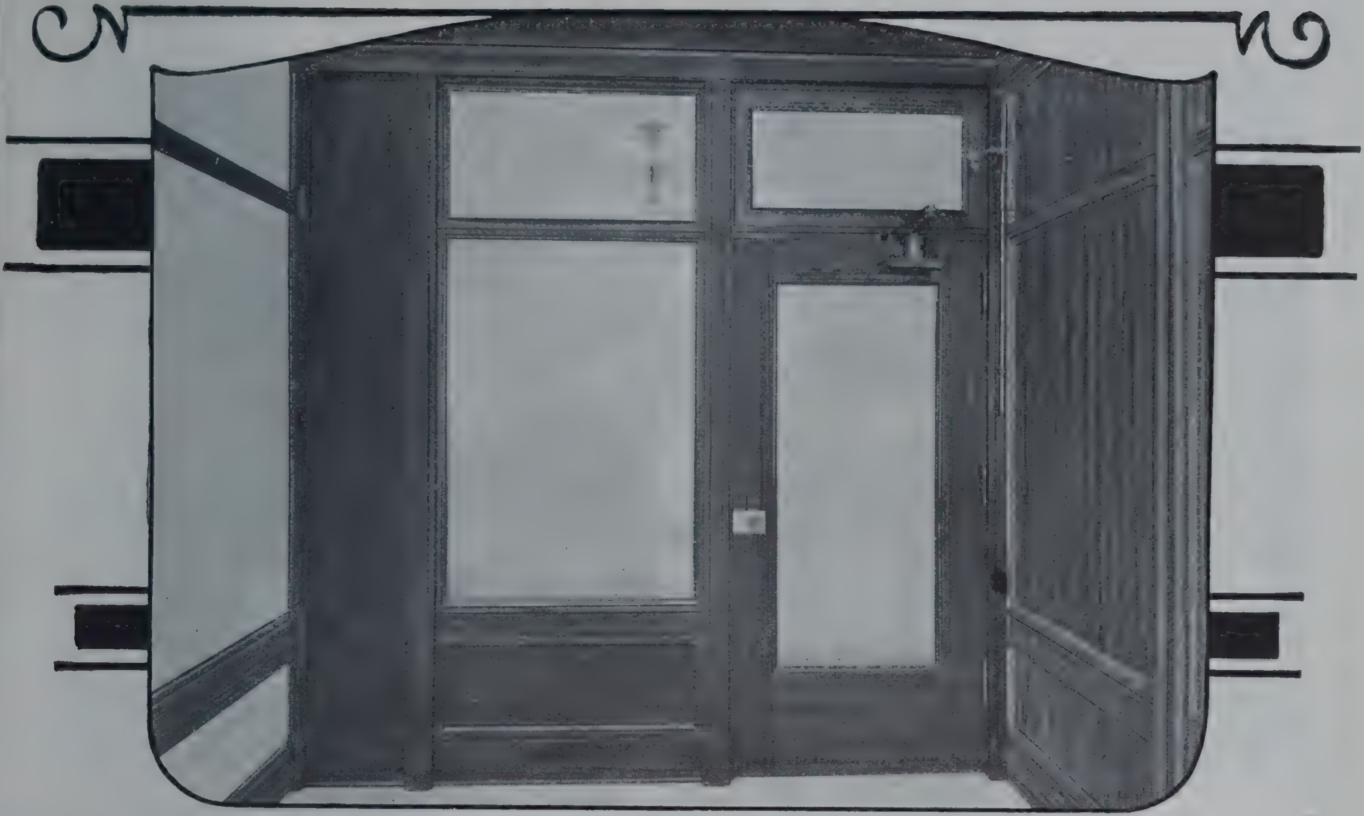

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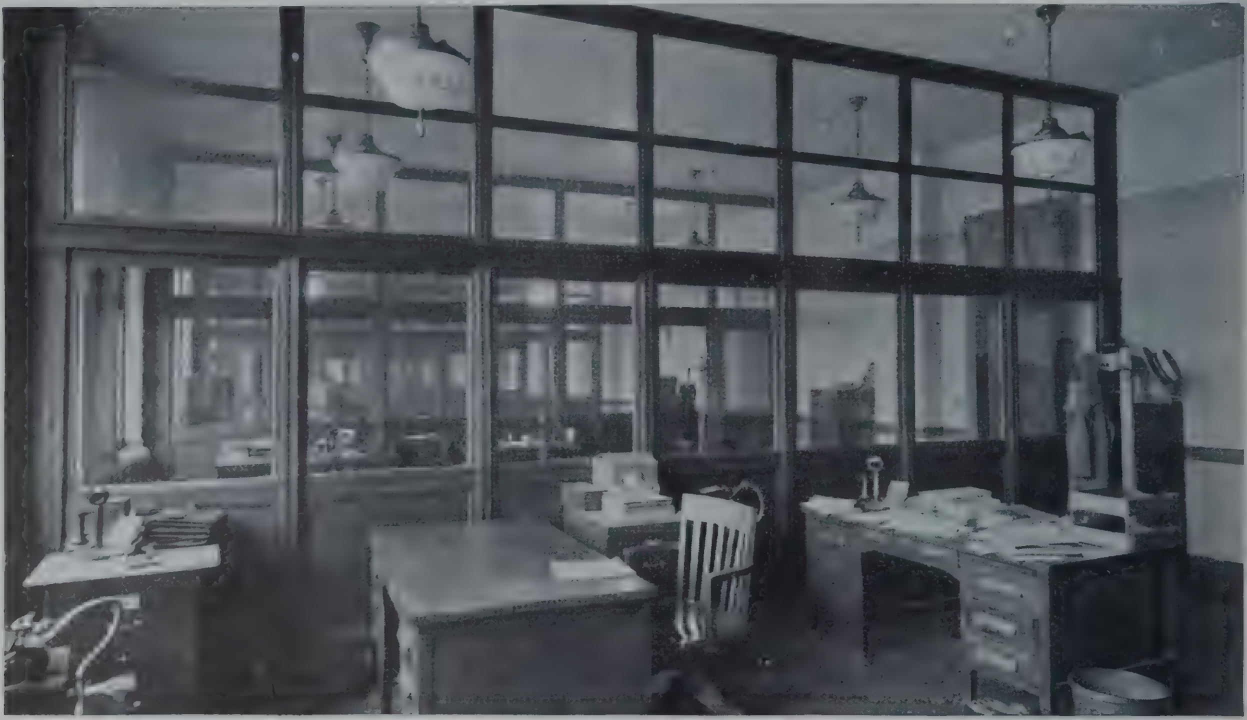

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Some Ancient Bridges of Old France

A Review by WALTER D. BLAIR

WITH problems of transport man has been occupied from earliest time. Trade has flowed along the routes of easy gradients laid out by nature. Where these routes crossed, as at Bagdad and Damascus, or were checked by natural barriers that demanded additional preparation for traversal, as at Palmyra, great cities sprang into existence. Across impeding rivers, if the route was important enough and his means adequate, man built in the past bridges of enduring masonry. This volume contains records of some of those that were built in France from Roman days down through the eighteenth century, a long chronicle of artistic accomplishment. Of the 40 bridges shown, five are of Roman origin. All reveal a high order of beauty, resulting from pleasing relations of simple elements, — masonry masses, arches, and piers.

The bridge shows man's leap into space and his mastery of that element in a far more stirring manner than any dome or minaret has ever done. These great arches that have come through the centuries still sing the same triumphant song of spirit mastering matter. The Pont du Gard, the bridge at Albi, the Gothic bridge at Cahors, the Pont Neuf at Paris, the Pont St. Laurent at Chalon sur Saone proclaim mind's mastery, some in bold, rude fashion, some graciously, some with an exquisite touch of delicacy. What could be more delightful than the little bridge of rusticated stone near Chalon, dating from the eighteenth century, which is formed of two semicircular arches of 20-foot diameter, with a central pier? Its buttress is semi-circular, with a projecting prow to break the force of the river's current, and is surmounted by a square urn of simple, rugged profile. A moulded cornice with modillions, of admirable profile, completes a design that is remarkably harmonious and satisfying.

These details are touched with imagination, for the buttresses, their silhouettes, their crowning features, the balustrades and cornices are of amazing variety and effectiveness. Such a bridge, to take only one example, is that near Auxerre, which consists of two small elliptical arches of 26-foot span with a single central buttress, is a veritable gem of beauty, one of the treasures of France.

The Pont Neuf, Paris
An Illustration from "Old Bridges of France"

It is a pleasure to record that this book has in its chosen field the technical quality and artistic interest of Letarouilly. Each bridge is presented in a series of line drawings, plan, sections, elevation, and details of admirable and precise draftsmanship. There are also given two pages of drawings which show all the bridges drawn to the same scale, and a tabulated list giving the location, name of river spanned, date. author, number of arches, width of arches, total length and width, and the height above water of each bridge. In addition there are photographic views, maps and diagrams, and 24 reproductions in color from original water colors by Pierre Vignal, superbly done, and 35 black and white drawings by Louis C. Rosenberg and Samuel Chamberlain. Was there ever so abundant a feast spread for architect, bridge engineer, or lover of simplicity in architectural beauty? And, as *hors d'œuvres,* since they come first, a preface by Victor Leloux, a delightful introduction by the authors, and a bibliography. The text is admirably written, and gives in an interesting way the history of each of the bridges.

It is safe to say that no publication of so great architectural merit and usefulness has appeared for years. It will become a standard work of reference in every library. In conclusion, mention must be made of the excellent typography, and praise awarded for its artistry.

OLD BRIDGES OF FRANCE. By William Emerson and Georges Gromort. Portfolio. Preface by M. Victor Laloux; 24 reproductions from black and white drawings by Louis C. Rosenberg and Samuel Chamberlain; 44 measured drawings, diagrams, maps, and reproductions of photographs. 12½ x 17¾ ins. Price $25. Press of the American Institute of Architects, 250 West Fifty-seventh Street, New York.

Any book reviewed may be obtained at published price from The Architectural Forum

Bertram Grosvenor Goodhue

Architect and Master of Many Arts

PERHAPS no architect who ever lived in America built up more of a personal following than Bertram G. Goodhue. His was one of the two or three names which came instantly to mind when Gothic ecclesiastical architecture was mentioned, and his churches, many and prominent, have exerted their influence upon ecclesiastical architecture all over the world. But Mr. Goodhue was equally talented in other and quite different ways. He well knew how to handle architecture of entirely other kinds, and his drawings, book plates, illustrations and type faces were of such note that they all but compete with his work, as an architect of Gothic churches.

THIS volume constitutes a record or review of Mr. Goodhue's achievements in many fields. Those who collaborated or worked with him have contributed to its text, and its illustrations set forth the excellence of his work in all the arts of which he was an acknowledged master. It is a magnificent and authoritative work, issued by the Press of the American Institute of Architects.

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A HISTORY OF ARCHITECTURE. By Sir Banister Fletcher. Seventh Edition. 933 pp. 6 x 9½ ins. Price $12 Net. Charles Scribner's Sons, New York.

APPEARING now in its seventh edition, this excellent history of architecture is far too widely known to require an extended review. Sir Banister Fletcher occupies a high rank among the most eminent British architects, a tireless traveler, deep student, the recipient of countless honors, and a member of many learned societies, and his work is the result of abundant learning and erudition, as well as of wide experience.

One is often asked to suggest to some aspiring beginner a work dealing with architecture. As a rule it is wise to recommend for his reading some volume which explains what architecture really is, its relation to life, giving as well some brief outline of the forms which architecture has assumed at different times and in various countries. Sometimes, however, the beginner's interest leads him further afield, and the call is then for a work of wider scope, a *history* of architecture, which instead of skimming over the surface and dealing largely with generalities goes deeply and intimately into the subject,—and for such an one it would be scarcely possible to suggest a volume more valuable and helpful than the work now under review. It is complete in every detail.

For the present edition the text has been both revised and added to, while to cover the subject with the completeness which it deserves there have been included more than 3,500 illustrations, full-page or half-page halftones in many instances, of the most important examples of architecture in the world, and line cuts of many others, with countless cuts of details, plans, sections, profiles, elevations and the like, these minor cuts being accompanied by scales by which measurements may be easily made. To add to the great helpfulness of the work there is appended to each chapter a full bibliography or "list of reference books," with the aid of which the student may continue the study of architecture as far as his inclination may lead him. Nothing of interest is overlooked.

The complete title of this work is "A History of Architecture On the Comparative Method," and its aim is "to display clearly and briefly the characteristic features of the architecture of each country, and also to consider the special influences which have contributed to the formation of each style; for hitherto geography, geology, climate, religion and social and historical development have not been sufficiently considered in dealing with architecture.

"In order to bring out the effects of these influences, a method both *analytical* and *comparative* has been adopted, to elicit the special qualities of a style, and to contrast them, so that differences may easily be grasped, and individual styles better understood. For instance, the character of Gothic architecture is emphasized by comparison with the Classic and Renaissance styles; while shades of difference in local or national phases can be best appreciated by similar treatment.

"Each style, then is *analytically* examined under five headings, and thus the influences, character, examples and analysis of each style can be contrasted with those of any other style in this *comparative* method. In some sections the analysis of two styles is set out in parallel columns, a system which has proved very helpful to students." The work is indeed one of the best imaginable.

EIGHT PERIODS AND THEIR MODERN ADAPTATION. Third Edition. Issued for Architects and Interior Decorators by the Murphy Varnish Co., Newark.

TO promote the correct use of its various materials, the Murphy Varnish Co. issued in 1923 the publication "Eight Periods and Their Modern Adaptation," presenting a review of the historic periods of decoration which are being most followed by architects and interior decorators. The work supplied for each of the periods a brief historical review; illustrations and careful analyses of old rooms of these periods and of rooms recently designed; illustrations of the furniture and accessories which belong to them; a "characteristic chart," giving suggestions for the treatment of ceilings, walls, floors and other parts of structural background, and suggestions also for the arrangement of furnishings, draperies and other fittings used to enhance the architectural and decorative value of the interior; complete directions for using the stains, varnishes and other products of the Murphy Varnish Co. in securing these finishes. The practical value of the brochure is attested by the fact that almost 5000 architects and a vast number of interior decorators have asked for and received copies since the original edition was issued, two years ago.

Widespread and deepened interest in the early Spanish type of architecture and interior decoration made it apparent some time ago that this work should have included a discussion of the early Spanish to make it as helpful to architects and decorators as the Murphy Varnish Co. desired, and in preparing the third edition of "Eight Periods and Their Modern Adaptation" there has been added a section on this particular type. This new section presents illustrations and descriptions of rooms old and rooms recent; two pages of illustrations of accessories,—furniture, pottery, metal work, etc.,—of Spanish origin; suggestions for the treatment of interior architecture and the arrangement of furnishings, and directions for using the different materials supplied by the Murphy Varnish Co. for securing the decorative effects on ceilings, walls, floors and woodwork which are so vitally important to the correct interpretation of this distinguished but frequently misunderstood architectural type. Much of its character depends upon details.

"Eight Periods and Their Modern Adaptation" may be had by architects and interior decorators of the Murphy Varnish Co., Newark, and for those who have received copies of the earlier editions the Spanish section has been issued separately, under the title of "Spanish Interiors and Their Modern Adaptation."

STANDARDIZED METHODS FOR COÖPERATIVE BUILDINGS; Organizing, Selling and Operating Coöperative Apartment Buildings. Price $20. Issued by The Coöperative Apartment Association of Chicago.

LIKE many another innovation or new departure in building or real estate ownership, the matter of the "coöperatively owned apartment house" has had to go through a preliminary stage in which experiment has led to an understanding of the problem and an appreciation of the pitfalls which, unless wisely managed, it may present, and finally to a point where, during many years, complete and entire success has been achieved. The project of a coöperatively owned apartment house involves much the same consideration which should be applied to any other project in which a number of people unite to achieve some definite, specific end, sometimes referred to as "group ownership." In such an instance it includes (1) purchase of a suitable building plot; (2) erection of an appropriate building; (3) such control or management of the enterprise that the investment of each of the parties concerned is safeguarded, and that each derives the benefits which come of participation in an operation which is coöperatively managed. Each of these problems demands study.

It has now been many years since coöperative ownership of a residence structure was first attempted in America. Because the methods by which success in such a field was to be attained were not sufficiently understood, the early projects met with difficulty if not with disaster. But the matter was given the careful study of minds well trained by dealing with problems more or less similar, and with full and complete understanding of the problem there have been worked out means or methods which years ago definitely assured success to those who would profit by the lessons which experience has taught to those who would learn.

The success which coöperative ownership of residence structures has now attained, not only in New York but in countless other cities and towns, together with the need of some medium whereby the matter could be easily explained and the correct methods studied, has resulted in the publication of this valuable work. Men fully experienced in the details of group ownership here explain its workings; anyone interested may here learn how to go about forming a group of tenant-owners, and to make the matter abundantly plain there are included in the work even the actual legal blanks or forms by which the necessary contracts may be made and other details connected with coöperative ownership put through. The work gives what is (as far as is known) the only complete and authoritative advice as yet obtainable on a subject of growing interest.

THE MONUMENTS OF CHRISTIAN ROME. By A. L. Frothingham. 412 pp. 5 x 7½ ins. Price $3. The Macmillan Co., New York.

WHATEVER be his interests, the visitor to Rome arrives to find sources of interest which are overwhelming by reason of their number. Rome is so ancient and has been the world's center for so long that she has gathered to herself treasures archæological and artistic, and legend and romance in such abundance that those possessed by any other city pale almost into insignificance, when compared to Rome's inexhaustible store.

Mr. Frothingham's excellent work concerns itself with art and the architecture of Christian Rome, which originated in the most humble of ways in the Catacombs, but which emerged, vigorous and triumphant, during the reign of Constantine, to adapt ancient basilicas to use as churches, and to plunder venerable temples to embellish the new fanes which presently began to arise. The book is written from a point of view which is considerably different from that from which most works on Rome and Roman antiquities are prepared, and the author has succeeded in adding interest to the volume by including illustrations and descriptions of places and objects little known even to residents in Rome, and totally unknown to most visitors who explore the resources of the city.

The Ancient Missions of the Southwest

A Review by WALTER F. WHEELER

WHAT is left of the Missions in the southern portion of California and in certain sections of Arizona, Texas and New Mexico represents an architectural type which is wholly different from anything which was to have been found elsewhere in America during the early days of this country's history. The New England states and most of those along the Atlantic seaboard were settled by the English of several different types, and presently their architecture began to be developed along lines more or less English; New York, which was first Dutch and then English, exhibited forms reminiscent of the architecture of both countries. In Florida and Louisiana Spanish and French influences were strong, but in neither did building figure as prominently as it did elsewhere, and produced little in the way of structures which were highly important. Thus it will be seen that of those early buildings which could have been regarded as in any way notable, the greater part were of types unmistakably English in form and spirit.

A View at St. Bonaventura's
From "Old Missions and Houses of California"

To all of this the Missions present a striking contrast. The early settlement of the Southwest was by the Spanish, and the conquerors fully appreciated the importance of the civilizing influence of the friars, who carried the cross alongside the sword. Large powers, temporal as well as spiritual, were given to these ecclesiastics,—religious as a rule, and for the most part Franciscans, with some Dominicans and Jesuits,—and their influence dominated the region. Theirs was a gentle rule, the iron hand being dexterously concealed within the velvet glove. Of this rule the Mission buildings formed the sign or symbol of power both secular and spiritual. The friars, since they possessed little of this world's wealth and were unable to summon into their beautiful wilderness the expert architects, builders and engineers who were performing wonders in Mexico, relied perforce upon themselves and upon such of their Indian wards as could be trained as artisans in the simpler building trades. Their Mission buildings were for the most part of adobe coated over with stucco, and with wide roof overhangs designed to prevent the penetration of dampness behind the stucco to loosen it from its backing. In style they represented the simplest possible version of the Spanish Renaissance, exhibiting all the abrupt contrasts of which the Spanish architectural styles make such effective use, sometimes, it is true, when some particularly auspicious circumstance made it possible, indulging in some simple and rather tentative use of the Baroque forms which were popular in Mexico and Spain, the detail usually taking the form of an unusual window opening, some striking design of a pediment, gable or belfry, or else (upon occasions rare indeed) involving some rather primitive use of modeling. The plan was based upon that used in Spain and Mexico for secular as well as ecclesiastical structures, buildings enclosing a courtyard or *patio,* the church being the largest structure, with a narrow nave, made necessary by the shortness of the timbers used for trusses over the areas between heavy adobe walls. Such were the Missions.

Excepting for its exterior nothing could have been simpler than the Mission's appearance within, though here again the bold use of effective contrasts sometimes saved it from absolute bleakness; sometimes too there would be seen evidences contributed possibly a scholarly, cultivated taste, evidences contributed possibly by some visitor or by a friar who had seen something similar in Mexico or in Spain. The Missions ruled the region, subduing the Indians and leading them in the paths of peace, until the Missions themselves were secularized by the Mexican government during the second quarter of the nineteenth century. Secularization spelled the ruin of the Missions, and ruin was quickly followed by physical decay in all but the few instances (such as that at Santa Barbara) where the Missions have never been abandoned. Some of these venerable structures have been restored, not only structurally but also to the uses for which they were built. Restoration of others will follow.

The wide interest in Spanish architecture, together with the adaptability of the forms used in ecclesiastical building, renders this work of considerable architectural interest. Mr. Newcomb writes of the Missions in a way which clothes the subject with something like the garb of romance. Not only the Missions, either, for a part of the work deals with some of the old residences which also belong to the period which the Missions represent.

OLD MISSION CHURCHES AND HISTORIC HOUSES OF CALIFORNIA. By Rexford Newcomb. 379 pp., 7½ x 11 ins. Price $15. J. B. Lippincott Company, Philadelphia.

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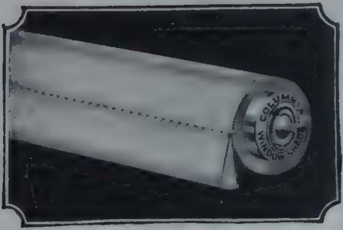

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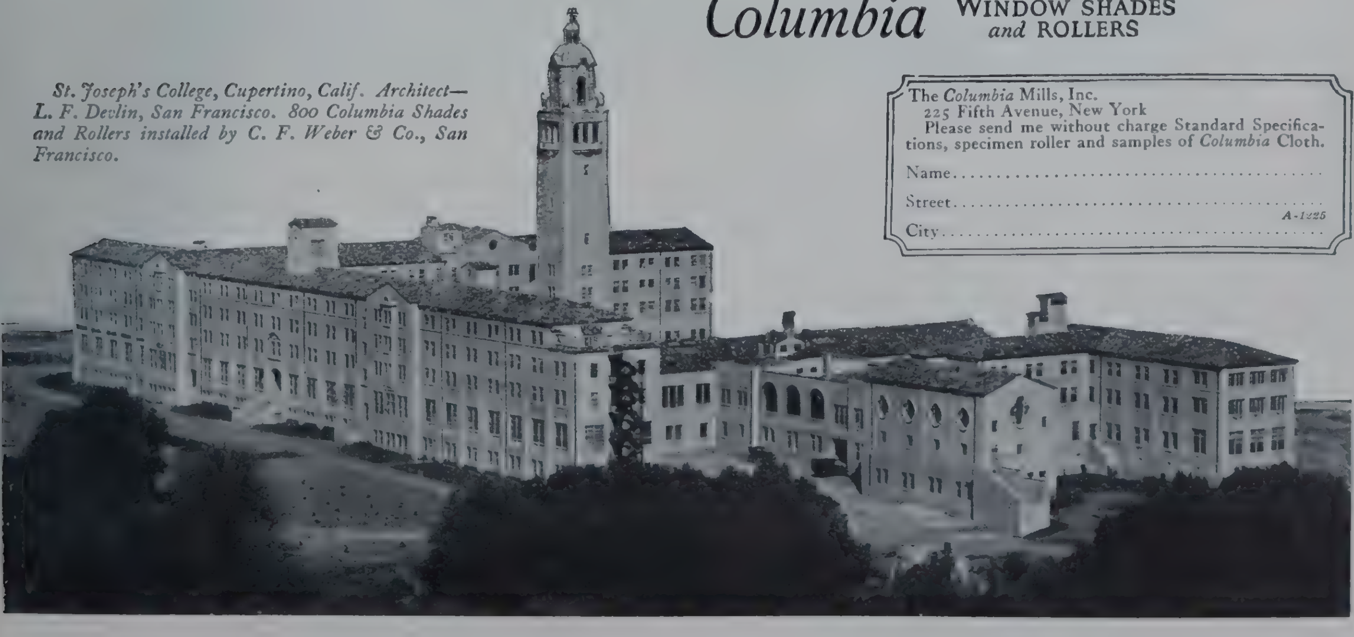

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CONTENTS *for* DECEMBER 1925

PLATE ILLUSTRATIONS	Architect	Plate
Gymnasium, North Carolina State College of Agriculture	*Hobart B. Upjohn*	89
Entrance, Gymnasium, University of Indiana	*R. P. Daggett & Co.*	90
Entrance, Men's Gymnasium, University of Illinois	*James M. White and Charles A. Platt, Associated*	91
Entrance, Gymnasium, Smith College	*J. W. Ames and Edwin Sherrill Dodge*	92
Entrance, Gymnasium, Manhattan College	*James W. O'Connor*	93
Dormitory, Columbia Theological Seminary	*Wilson, Berryman & Kennedy*	94
Dormitory, Theological College for Lay Workers	*Baskerville & Lambert*	95
Scottish Rite Dormitory for Women, University of Texas	*Herbert M. Greene Company*	96
Topliff Hall, Dartmouth College	*Larson & Wells*	97
Russell Sage Hall, Dartmouth College	*Larson & Wells and Office of John Russell Pope*	98
Lionel Hall, Harvard University	*Coolidge, Shepley, Bulfinch & Abbott*	99
West Residence Hall, University of Illinois	*James M. White and Charles A. Platt Associated*	100
Group of Dormitories, Princeton University	*Zantzinger, Borie & Medary*	101
Dormitories, Smith College	*J. W. Ames, K. S. Putnam and E. S. Dodge*	102
Colonial House, Connecticut College for Women	*Herbert R. Loud*	103
Students' Residence, University of Saskatchewan	*David R. Brown and Hugh Vallance*	104

LETTERPRESS	Author	Page
Cover Design: Stoughton Hall, Harvard University	*From a Drawing by Louis C. Rosenberg*	
The Editor's Forum		51
Study for Gymnasium, Yale University	*From a Pencil Drawing by Otto R. Eggers*	*Frontispiece*
Educational Influence of Collegiate Architecture	*A. D. F. Hamlin*	321
Planning of Dormitories	*Robert McLaughlin*	327
Planning of Gymnasiums	*Aaron G. Alexander*	333
Common Rooms and Dining Halls	*Leigh French, Jr.*	337
College Y.M.C.A. and Religious Buildings	*Rexford Newcomb*	341
Dormitory Designs by Day & Klauder	*Matlack Price*	347
College Club and Fraternity Buildings	*Mary A. Rolfe*	353
S. K. Club House, Harvard University	*Coolidge & Shepley*	361
Sigma Nu House, Dartmouth College	*Larson & Wells*	363
Phi Delta Theta House, University of Illinois	*Howard VanDoren Shaw*	365
Alpha Delta Phi House, University of Illinois	*Ralph W. Varney*	367
Iroquois Club House, Harvard University	*Warren & Wetmore*	369
Kappa Kappa Kappa House, Dartmouth College	*Larson & Wells*	371
D. U. Club House, Harvard University	*R. Clipston Sturgis*	373
Delta Tau Delta House, Dartmouth College	*Blackall, Clapp & Whittemore*	375
Designing and Planning of Stadiums	*Mary A. Rolfe*	377
"Efficiency" Dormitories	*C. Stanley Taylor*	383

PARKER MORSE HOOPER, Editor

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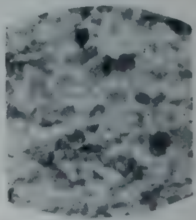

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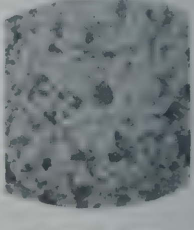

Bishopric Stucco

BISHOPRIC STUCCO over **BISHOPRIC BASE**

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THE EDITOR'S FORUM

TABLET FOR OCTAGON HOUSE

PRIZES of $150, $100 and $50 are offered by the American Institute of Architects for the best designs for a tablet or sign to be placed on the premises of the Octagon House, the headquarters of the Institute, at Washington. It is suggested that the proposed device take one or another of the following forms: a wall tablet to be fastened to the building; an inscription in individual bronze letters set into a stone or granite sidewalk leading to the front entrance; or a sign on a pole or standard. Drawings must be delivered anonymously to D. Everett Waid, President of the American Institute of Architects, at 1 Madison Avenue, New York, on or before January 1, 1926. A competition for the Octagon House tablet was held earlier in the year, but the Jury, of which Howard Van Doren Shaw acted as Chairman, reported that none of the designs submitted were suitable. Most of the designs were too monumental and out of scale with the building, while others were not in keeping with its architectural dignity, or else unsuitable for other reasons.

The Octagon House, Washington
Headquarters of the American Institute of Architects

Octagon House is now among the few survivals in Washington of the early federal period. The city home of the well known Tayloe family, the head of which was Col. John Tayloe, a friend of Washington, Octagon House formed from the first the setting for a brilliant social life and the scene of lavish hospitality, which the Tayloes were careful to see suffered nothing from comparison with that which they dispensed at their ancestral plantation in Virginia. Washington himself selected the site for Octagon House and advised its purchase, although it is said that he did not live to see the building finally finished and occupied by the Tayloe family.

Historical distinction, however, was destined to attach to the house, even though the First of the Presidents did not cross its completed threshold. When in 1814 the British burned the White House, the President and Mrs. Madison moved hastily into into Octagon House, which thus became a sort of improvised Executive Mansion, and here there was ratified the Treaty of Ghent which ended the war of 1812. Other events of historic interest have transpired within the building's walls during the century and a quarter since it was built. Tradition asserts that its spacious rooms were lavishly furnished, as would be expected in the Washington home of an important Virginia family, and beautiful indeed must have been its interior with the fine paneling and woodwork (still in place) forming a background for furnishings of the grace and character in vogue during the early decades of the nineteenth century, and for the costumes, partly French and partly English, which went so well with them.

It cannot be reported that the social brilliance of Octagon House has always been maintained in undiminished splendor. Neighborhoods change in Washington, just as they do everywhere else, and buildings as well as families and individuals have their periods of decline; and Octagon House had slipped down quite a number of the rungs of the social ladder before it was acquired by the American Institute of Architects, first by lease and then by purchase, and restored for use as its permanent home, for which it is well adapted.

A REPORT ON JAILS

VALUABLE data on prison buildings and conditions are given in the report submitted to the American Prison Association at Jackson, Miss., on November 10 by Dr. Hastings W. Hart, formerly President of the Association, and now Chairman of its Committee on Jails. The publication of the report, by the Russell Sage Foundation, is expected.

A COVER COMPETITION

DURING the last three years *The House Beautiful's* Cover Competition has been an annual event. The announcement of the fourth competition contains an addition to the usual number of prizes. The first prize is $500, the second prize, $250. In addition to these, this year, and in addition also to the possible purchase price of a design, is offered a special prize of $100 with a certificate of merit for the best design submitted by a student of any school of art. The competition closes January 29, 1926. Full particulars regarding it may be obtained by writing to the Competition Committee, *The House Beautiful,* 8 Arlington Street, Boston

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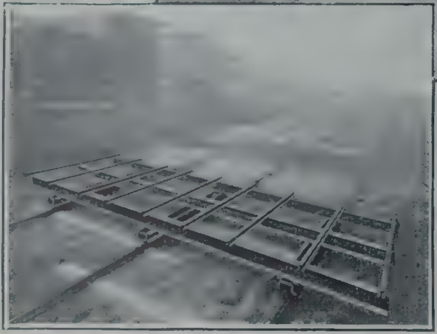

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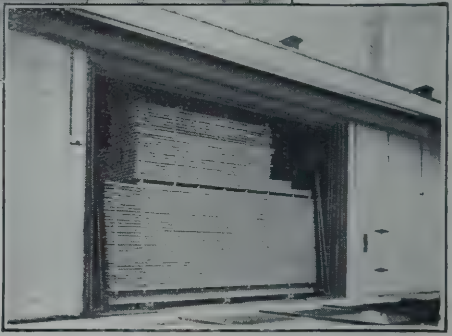

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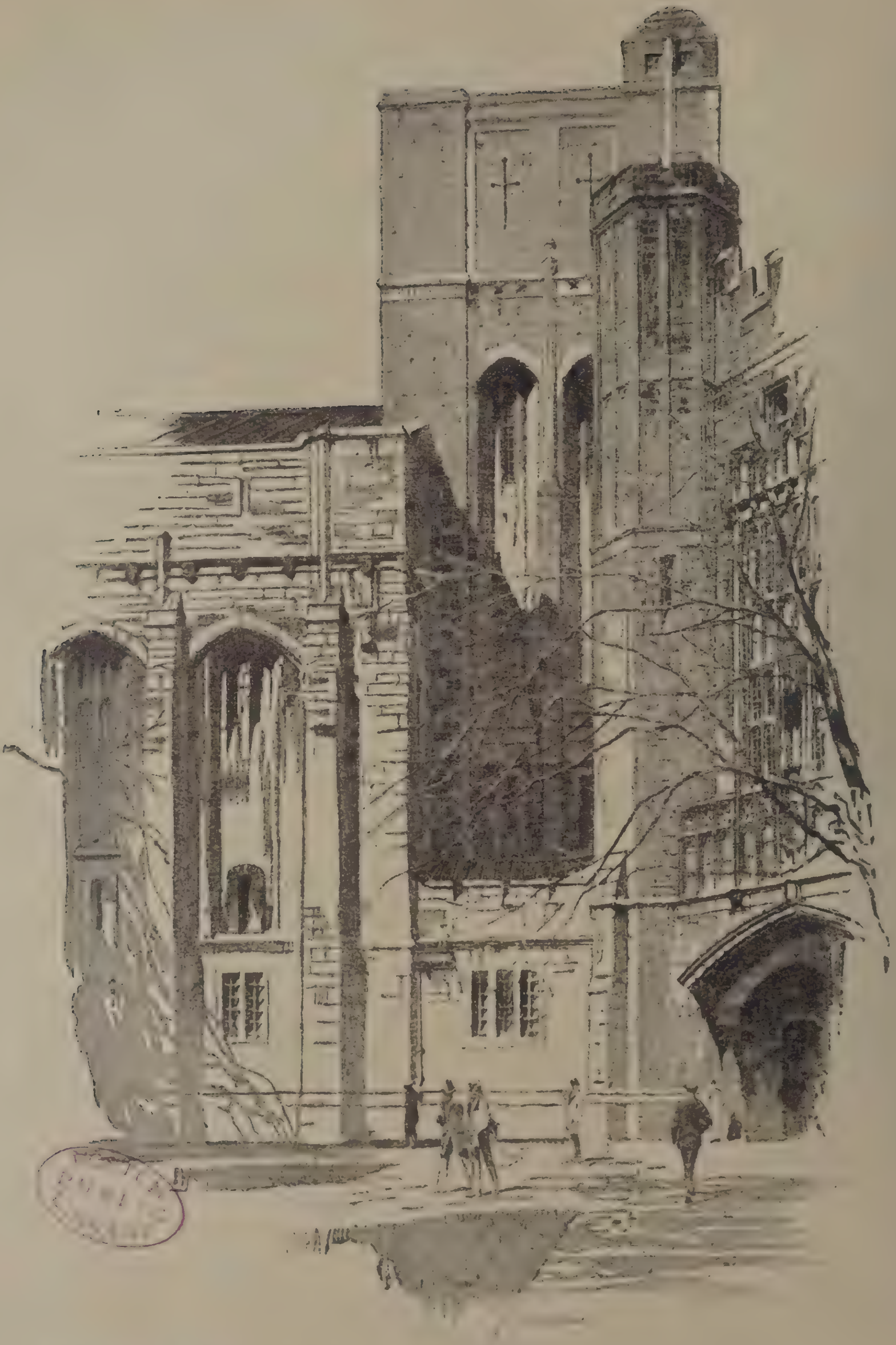

STUDY FOR GYMNASIUM, YALE UNIVERSITY

JOHN RUSSELL POPE, ARCHITECT

From a pencil drawing by Otto R. Eggers

The
ARCHITECTURAL
FORUM

VOLUME XLIII DECEMBER 1925 NUMBER 6

The Educational Influence of Collegiate Architecture

By A. D. F. HAMLIN

Professor of Architecture, Columbia University.

IF the philosophy of the necessitarians is correct, human character and achievement are determined by heredity and environment. Either of these factors may dominate the other, or they may act conjointly to produce the criminal or the saint, the hero or the coward, the millionaire or the spendthrift. Whether we accept this philosophy to the exclusion of free will and moral responsibility or not, it is impossible to deny that the circumstances and material environments of life do exercise a powerful influence on human careers. So far as this philosophy is sound, all efforts to create a favorable environment for human beings are rational and creditable aids to social betterment. The gradual elimination of the slums of great cities by provision of comfortable housing must in the long run tend to the reduction of crime and of the misery which helps to produce crime.

Just how far and in what way the changed environment provided by such public enterprises actually affects the public morals is a question not easy to determine. It is unfortunately true that even the splendid park system of Chicago has not reformed the habits of the criminal underworld of that city. Probably the members of that underworld do not frequent the parks except for anti-social purposes, and amid a thousand other environmental conditions favoring crime one has no right to expect any reformative influence from grass and trees, lake front and free baths sufficient to overcome these untoward influences. A bad heredity would alone be sufficient to counteract all the sanative influences of better housing, free baths and lovely parks. Yet it may well be that if an entire generation were to grow up under these influences, and if at the same time courts and juries and legislators, city officials and state governments became wise, humane and incorruptible, cities even like Chicago and New York might in time be freed from the terrible incubus of vast criminal underworlds, while an improved heredity would, in a later generation, carry still further the deliverance of large cities from organized crime.

The constituent elements of one's environment are too many and complex for any complete or accurate evaluation of the influence of any one of them upon character. In order to make any such evaluation, one must know the factors of the problem, which is impossible. No two men respond exactly alike to the same environment. Good music powerfully affects some natures; others are strongly influenced by motion pictures. The beauty of a fine landscape stirs one man; another finds uplift in the stir and movement of the city streets. A shiftless family in a charming house will soon reduce its charm to the disreputable shabbiness of their own characters,—which shows that sometimes it is character that shapes its new environment instead of the reverse!

In cities and populous towns the greater part of one's life is passed in and among buildings. The houses we live in, the schools in which we study, the churches in which we worship, the shops we frequent, and the edifices in which we work constitute the most constant and inescapable factors of our material environment. They are the products and exponents of our culture, and they exert an inescapable, if generally unperceived, influence in our lives and tastes. The public taste determines their architecture, and in return they react on the public taste! The architecture of Paris is both the product and the nursery of the Parisian artistic taste. The architecture of a great city is both the product and the nursery of its culture.

I was present at the opening of the Columbian Exposition at Chicago, 32 years ago. It was the first time that the hundreds of thousands who thronged it had ever seen great monumental architecture in a beautiful setting. What impressed me on the opening day was the expression of joy, of overflowing happiness, in the bustling crowds. They had never before moved amid such splendors of architecture and gardening, and in spite of all the inconveniences, hustle, and bustle, they were happy and showed it in their faces and talk. The architecture, the music and the flowers, all ministered to their sense of festival gaiety. I was then and there convinced that a beautiful architectural environment could become a potent factor in the morale of a community. Four years later Columbia University moved from its picturesque but cramped home in Anglo-Gothic brick buildings on 49th Street to its present site fronting

Women's Building and Gymnasium, University of Oregon, Eugene, Ore.
E. F. Laurence, Architect

116th Street. Shortly after the occupation of this site, as one of the editors of the *Columbia University Quarterly,* I commented in one of its issues on the probable influence of the architecture of the new home of the University on the student body. I drew attention to the noble South Court, with its superb stairs of approach, to the imposing Ionic facade of the Low Library, to the majestic beauty of the interior of that great building, and to the dignity and solidity of the academic buildings and their equipment. It seemed to me then that such an environment could not fail to make some impress on student life and character; that rowdyism and student vulgarity and the blatant silliness of undergraduate life would find here a rather sterile soil for their nurture. I think my expectations have been justified. There has been marvelously little of the vulgar disfigurement of interiors, of rowdyism within the walls, such as one too often hears of in colleges housed in ugly and shabby buildings. The dignity and fine finish and maintenance of the buildings lend themselves to rational and decent behavior within them. Whether the experience of other finely-housed universities has been of the same sort I do not know. I can only "speak that I do know, and testify that I have seen."

II

THE improvement in the architecture of our American colleges and universities during the past 25 or 30 years is abundantly evidenced in this issue of THE ARCHITECTURAL FORUM. It is precisely what one would expect in view of the general advance in American architecture during the same period. The trustees of our colleges, in spite of all the criticism leveled at them by educators and students, surely represent, on the whole, the higher levels of culture, education and taste of the communities they represent, and they have behind them both the stimulus and the criticism of large and influential bodies of alumni. The huge benefactions poured into the treasuries which they administer testify to the general confidence and respect which they enjoy. It is of course open to debate whether these benefactions have or have not been too largely devoted to buildings rather than to educational endowments, and there are those who go so far as to lament the increasing architectural splendor of our educational buildings, as subtracting unduly from the endowments for salaries, equipment and research. I do not propose to debate this question. Mark Hopkins sitting on one end of a log, teaching and inspiring a student sitting on the other end, as the ideal of a college, constitutes a figure of speech, not a practicable program of education. For there never were and never will be enough Mark Hopkinses to go around, and the modern college student demands something more than to listen to anyone's preachment! The days are gone in which a man "read law" with the village lawyer for admission to the bar, or "read divinity" and Hebrew with his old pastor as his chief preparation for the Christian ministry. The phases of knowledge, the kinds of mental experience required by the educated man of today have so enormously increased and become so diversified, that even the undergraduate college has been compelled to develop architecturally and into a highly complex institution, to provide housing for this complexity. Especially have the natural sciences made necessary a vastly increased equipment of teachers, classrooms, museums and laboratories, and now that appreciation of the Fine Arts is at last percolating into our undergraduate courses, it has been necessary to provide other special forms of equipment,—lecture rooms, art collections and galleries. The development of libraries and of their use for study and research, even in undergraduate colleges, has been phenomenal. As I look back over 50 years of graduate life, the provision for use of the library, alike in Amherst where I was graduated and in Columbia where I began teaching in 1883, was so meager as to be absolutely ridiculous. Amherst now has a library building which cost a quarter of a million, and Columbia a library which cost very nearly a million, and these libraries are thronged all day and every day. Meanwhile, the steady increase in the student population has more than kept pace with the increasing diversity of the courses they pursue, and has added new dormitories, commons halls, student-club houses and fraternity buildings to the architectural environment of the college student. Athletics have become also so important an element in the college life, and in many cases in the curriculum, that every college worthy the name has had to add to its buildings gymnasiums, swimming pools and athletic fields, and in the larger institutions stadiums or "bowls."

The result of all these changes in the college life, curriculum and activities has been to produce an architectural environment which can only be compared to that of the great mediæval monasteries of France and Italy, like Monte Cassino and Clairvaux. Whereas in former and simpler days a college could get along very well with a chapel, a small library, a building for recitations, and two or three dormitories, fronting upon or scattered about a spacious open campus, today no college can thrive or even function without a considerable number and variety of special buildings. In some cases this necessity has been availed of to produce a homogeneous and imposing group, and to give the students a beautiful and inspiring architectural environment. In others (and alas too many cases!) the opportunity to produce such an environment has been frittered away by the lack of foresight and of large views of the opportunity. The shortsighted trustees have thereby cast away a potent means of influencing their students in the direction of good taste and of sound morale, for however subtle and imponderable such an influence may be, and however unconscious the student of its action upon him, the influence is there, and it operates silently and unperceived through all the four or more years of his residence. However unrealized by himself, it tends to form many of his ideas of art and life which influence his character.

III

THE average American college student is probably somewhat opaque to the penetration of the rays of purely æsthetic influences; he is generally sadly ignorant of both the history and the technic of the Fine Arts; he is a good deal of a Philistine; but that he is impervious to every æsthetic influence I do not believe. Consciously or unconsciously, he reacts to his environment.

Two years ago, rambling through the deserted and silent courts of Eton College in the summer holidays, I became interested in the hundreds of memorial tablets on the walls of the cloister or arcade of the main quadrangle. Most of them commemorated Etonians who had laid down their lives in the Great War. Among them I found one which so attracted my attention that I copied it. It read thus: "In Memory of: Harry Richard: Deirghton Simpson: Lt. 6th (Inniskilling): Dragoons Att. R. F. C.: An American Boy: of Infinite Daring: Who returned: for Love of Eton: to help England: In November 1914: but was killed: after almost 2 years: of continuous Service: While testing a new machine, on Dec. 1916: *Etonam Nactus: Exornavit: Floreat Etona.*" "For love of Eton!" Why did this American lad so love Eton as to return to help England in her struggle against the Hun? Doubtless for many reasons; the pull of many and various ties of sentiment; memories of college days, of rosy-cheeked English lads with whom he had played cricket on Eton's grassy field, of friendly teachers and happy hours; all of these helped to form his love of Eton College. But no one can visit those fine old cloisters and the beautiful College chapel without realizing, to some degree at least, the potency of the spell which that rare environment must weave about all its frequenters, and which lasts as long as life itself!

If an American lad could be drawn from across the seas to lay down his life "for love of Eton" how potent must have been the spell wrought through four centuries by the now venerable halls and cloisters of Oxford and Cambridge! However familiar and commonplace they may have become to the undergraduate, rushing from lecture or quiz by his don to the river or cricket field, and even to the fellows and dons and tutors in their old halls, the quiet and century-old beauty of those ancient "quads," of their broad gate towers, mullioned windows and crenelated parapets could not fail to become inwoven with the fabric of the lives of men who haunted them. These fine old halls, so dignified, so free from meretricious gewgaws and architectural falderal, so quiet and restful in form and color, must have wrought their spell into the lives of their inmates, unconsciously rather than consciously, because they were an essential element in the scholastic environment of life. How instinctively the mention of Oxford as the Alma Mater of any great or near-great Englishman suggests to the mind of anyone who has been in Oxford the "quad" of Balliol or the tower of Magdalen, the ivy-clad walls of the "backs," the sturdy steeple and Spanish doorway of St. Mary's, and the sleepy shelf-lined halls of the Bodleian Library! And if Cambridge boasts less of the Tudor Gothic charm of Oxford, she has the glory of King's College Chapel, the stately courts of Clare and Caius,—"Keys" they call it—the fine dignity of Wren's Trinity Library and the eighteenth century quaintness of Emanuel's quadrangle. May one not possibly assign to the more modern aspect of the architecture of Cambridge at least a part of the subtle difference between the two traditions, with mathematics and science at Cambridge taking somewhat the place of classics and religious disputation at Oxford? Such an explanation seems to be reasonable.

The Library of Columbia University, New York
McKim, Mead & White, Architects

In our own colleges and universities the development of a characteristic monumental architecture has been too recent to allow of broad generalizations such as those I have just suggested, but I believe somewhat similar results will manifest themselves as time grows older. Making all due allowance for the increasing complexity of modern life and the multiplicity of influences that play upon the undergraduate, and bearing in mind also the fact that the new college walls can for many years to come enshrine no such wealth of ancient tradition, can commemorate no such galaxies of genius as do the memorial tablets and storied windows of old English college

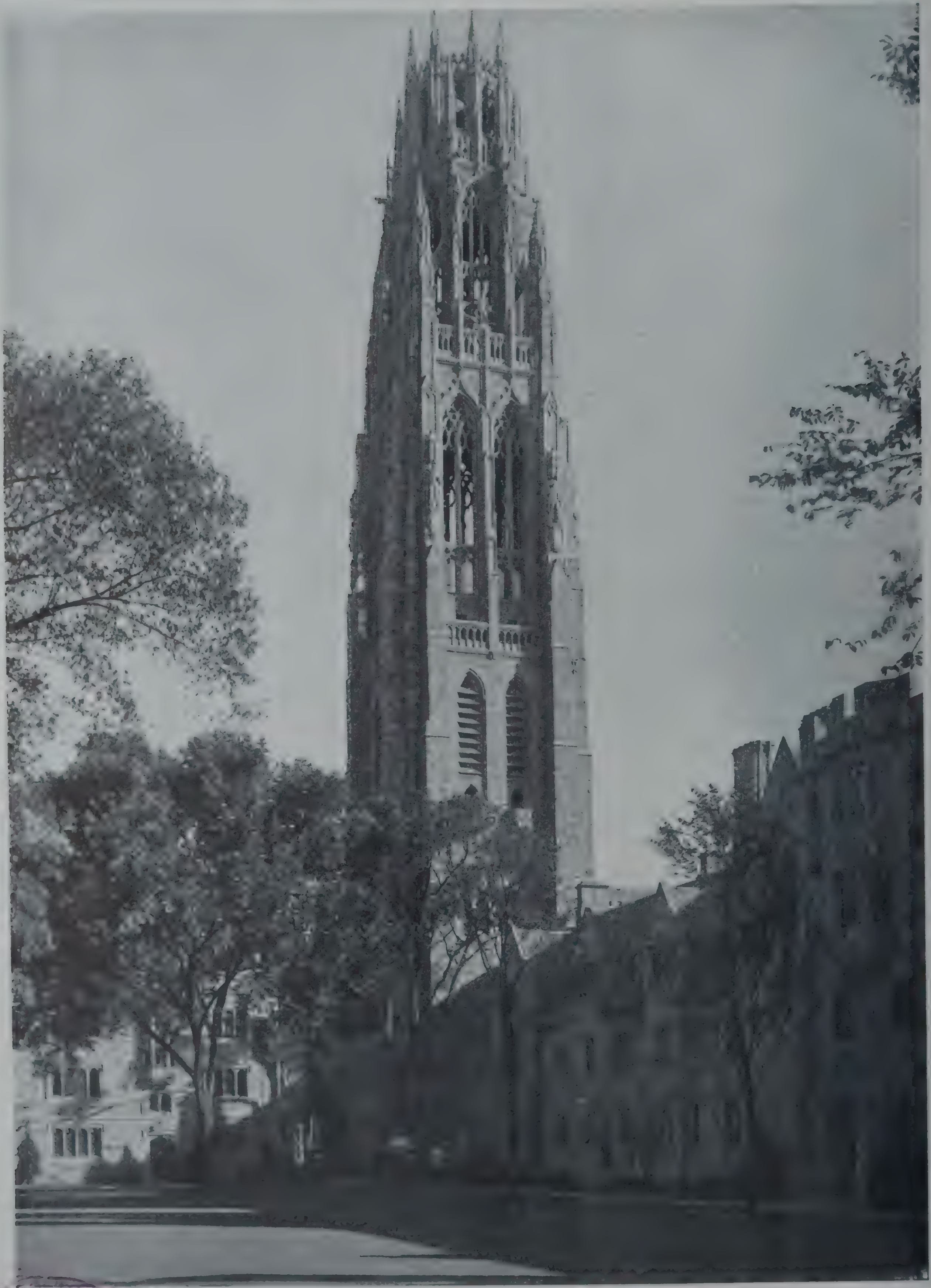

Photo. John Wallace Gillies

HARKNESS MEMORIAL QUADRANGLE, YALE UNIVERSITY, NEW HAVEN
JAMES GAMBLE ROGERS, ARCHITECT

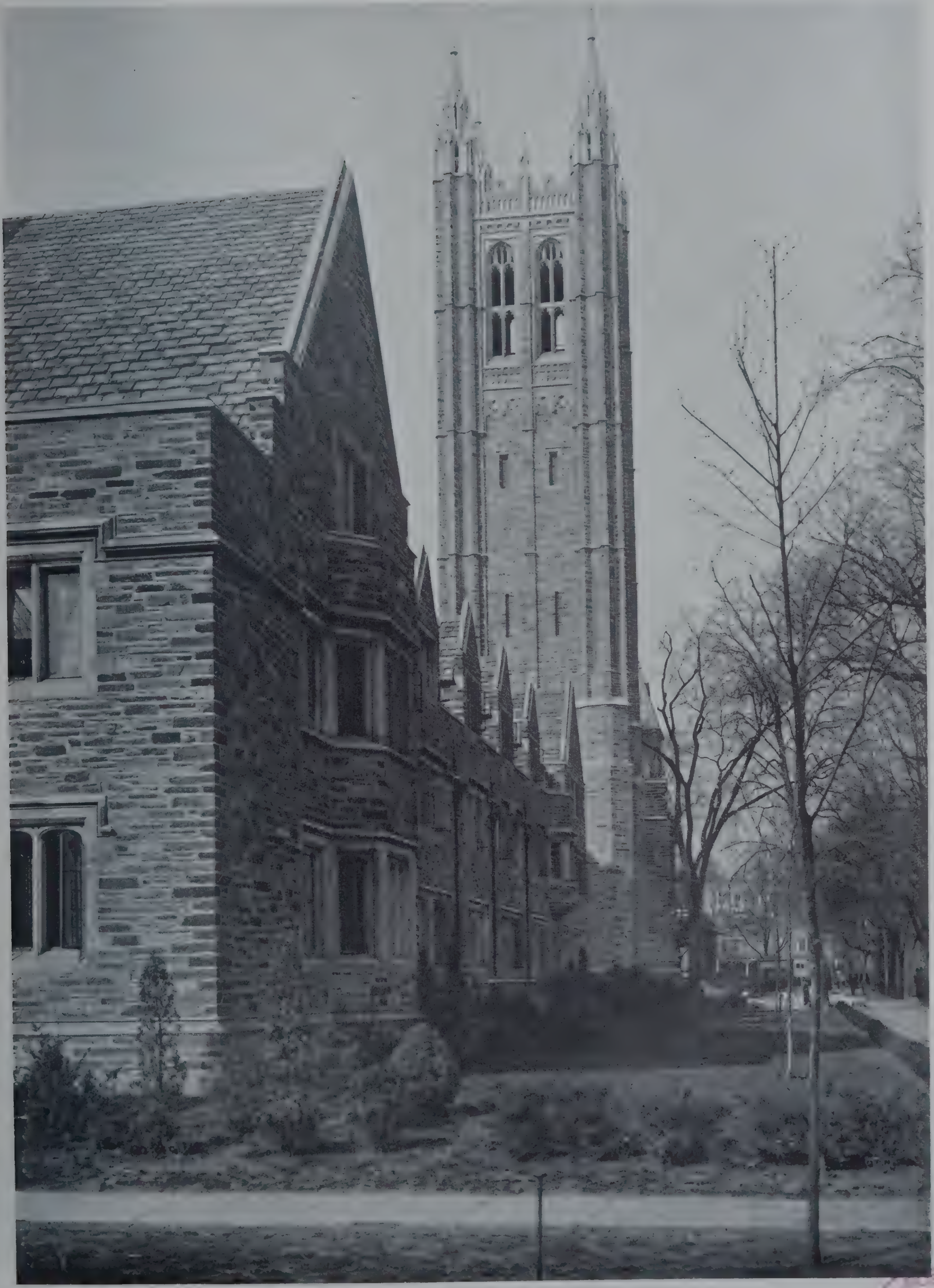

Photo. Rose & Son

HOLDER HALL, PRINCETON UNIVERSITY, PRINCETON, N. J.

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halls and chapels, the new and finer environment of such college architecture as has been taking form at Princeton, Yale, Berkeley, Palo Alto, Philadelphia, Chicago, and Johns Hopkins, at Bryn Mawr and Vassar, must in the long run tell on the lives of the students who frequent them. To pass four years or more in their halls, to worship in their chapels, to be surrounded by monuments of good taste and to live in dormitories which are models of good planning, comfort and often of charm, can no more fail to influence the minds and tastes of their occupants for good than can base and tawdry, decrepit and filthy homes fail to discourage aspiration and debase the standards of life. As the general standards of well being and of the public taste advance,—and a backward look of 50 years to my own college days fills me with amazement at the change,—the college life should be environed with the evidences of that advance. In my day we drew all our water from the college well; carried up the coal for our stoves in coal scuttles from our private coal heaps behind the "dorms," swept our own rooms; filled our own kerosene lamps, and lived a life of almost Spartan simplicity. My sons in the same halls had modern plumbing, steam heat and electric lights. I have discovered in them no evidence of mental and moral anæmia as the result of these fabulous luxuries of living!

The Princeton graduate student, living and working in Cram's fine group of the Graduate School on its hill apart, can hardly fail to contribute to the evolution of a type distinctly different from that of the Columbia graduate student, dwelling generally in a lodging apart from the University, in the heart of the throbbing life and activities of a huge city. The two types may very probably become in time even more widely differentiated than those of the Oxford and Cambridge graduates! And it is well that there should be a different sort of environment for different types of aspirants to advanced scholarship, just as there are different types of homes for different sorts of people throughout the country. And precisely the same sort of differentiation, though with a narrower range of variation, is developing and is desirable in our higher institutions of learning. It is the glory of our American higher education that it is not controlled by any supreme federal authority. Standardization has become a sort of fetish in many American minds. But the Great War has at least demonstrated to Americans the futility of trying to centralize control and unify methods in any activity under any super-authority, federal or other. Only in mechanical industries, and therein not by super-control but by mutual agreement, has standardization produced desirable results. The human mind in these days refuses to be bound by external authority, and in our vast domain with its hundred million souls, our nation can measure up to its opportunities and responsibilities only by allowing free play to the mind, by encouraging, not by fettering, those differences of mind and taste that develop in various communities under differences of climate, resources and environment. Only thus is real liberty to be attained.

We shall never develop any uniform or even predominant style of collegiate architecture. The architectural contrast between Palo Alto and Columbia, between Harvard and Princeton, between Amherst and Chicago, is surely no mere accident, but expresses differences of taste or spirit, of ideals or purpose in the institutions themselves. The distinct architectural environment provided by each different type may in the long run tend to emphasize subtle differences in the spirit and tastes of its students. It would be foolish to attempt to push this idea too far. The architectural character of each group is not a mould into which each student mind must be poured, and differences of style which to the architect are obvious, may be wholly unperceived by the student. It will never be possible to distinguish by any difference of learning or character the alumnus of a college housed in a Gothic group from one graduated from a college of Colonial architecture. All that one can say is that the more susceptible the student is to æsthetic impressions and to his material surroundings, the more readily will his character and taste react to his material and artistic environment, and that the more his environment lends itself to efficient teaching, serene concentration and a life undisturbed by discomforts the more efficiently will the student's mind function, the more favorable will be his reaction to surroundings, and the more firmly grounded his taste.

IV

ONE of the finest ministries of American religious culture to the world has been the splendid group of colleges established by American liberality in less favored lands,—in Turkey, China, Japan, Bulgaria, and elsewhere. Housed in fine buildings of American design, though often in the local or national style, they represent thoroughly modern ideas of construction and equipment. To the complaint that these buildings are "too fine" for their communities, that students born and bred in a different and less sophisticated atmosphere would by the elegance, the comforts and conveniences of these schools be spoiled for life among their people, the answer has been given by more than a half-century of experience. Instead of being sophisticated and spoiled by education in surrounding so different from and superior to those of their home life, their graduates have become more patriotic than ever, going forth fired with a zeal to pass on their betterment to their less fortunate compatriots, raising the general standard of living in their home communities. These colleges are potent in commending the American people to foreign communities, and both directly and through their graduates, to whom these buildings have been a revelation of American Christian ideals and standards, the architecture of these colleges is constantly and silently exerting an influence for civilization, culture and international friendship. Wherever they exist, America is regarded as a home and source of beneficent and friendly influence to all.

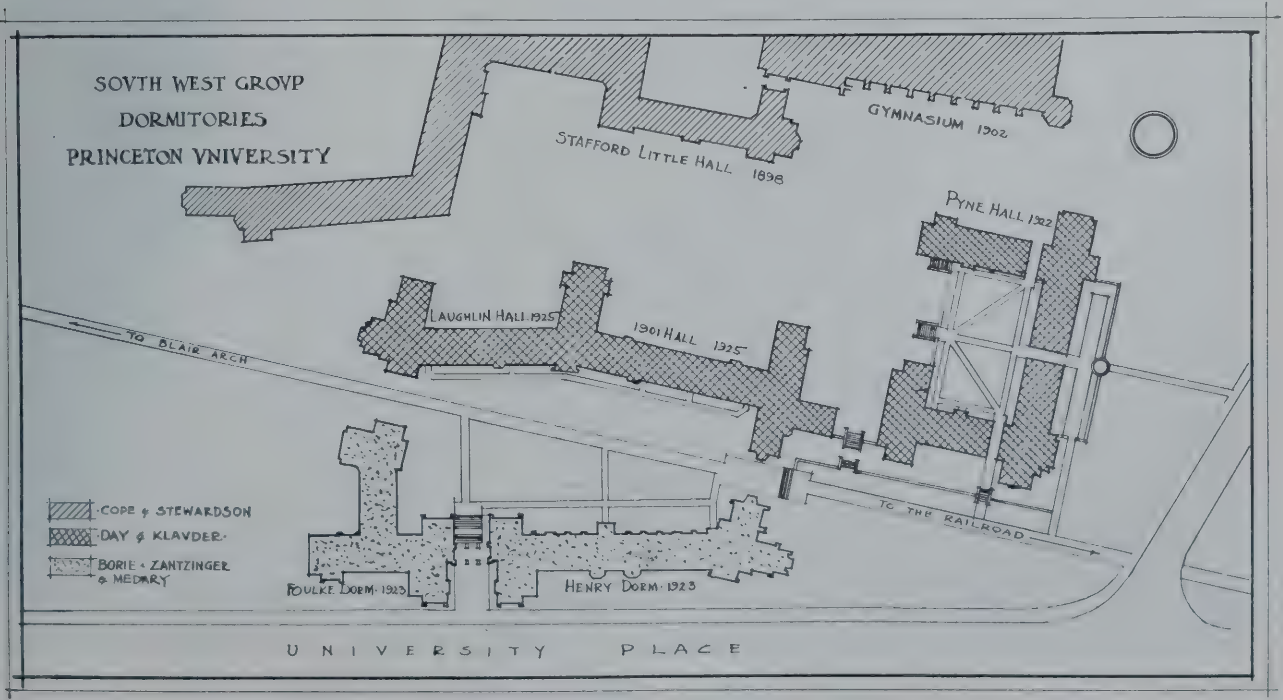
The Planning of Dormitories

By ROBERT McLAUGHLIN

IN the days before the Revolution, when everyone who attended the College of New Jersey lived in "Nassau Hall," there occurred a battle between students and faculty in which the students bolted their doors against the faculty and declared war. Nowadays the younger instructors and professors live in the dormitories with the students, and their doors as well as those of the undergraduates are not bolted. This change in mood has been paralleled by a change in architecture. The long, bare corridors of "Nassau Hall" have been given over to the University offices, and the undergraduate now lives in one of the attractive residences that form the subject of this article. It is a pleasing picture,—these low, informal dormitories clustering about and enclosing the great Chapel, Library and Laboratories, that are the heart of the University. Completing the picture is still in process. In spite of valiant efforts to limit the enrollment and a constant building of dormitories, four hundred students still room off the campus.

The Development. "Blair Hall," built in 1896, is the oldest of this group and the first Princeton building to be built in the collegiate Gothic style. In the early nineteenth century several massive buildings of classic proportions had been grouped about "Nassau Hall," which for almost 50 years housed the entire College. The 'seventies and 'eighties produced a small but choice collection of romantic revivalisms. 1896 was the year of Princeton's sesqui-centennial, and the construction of "Blair Hall' may be said to mark the beginnings of her renaissance in architecture. It is natural for a renaissance to disregard what is obvious and perhaps indigenous for something usually distant in time and often remote in space. Hunt's Byzantine and Potter's Romanesque were abandoned, not for the middle Colonial of "Nassau Hall," but for the Gothic of Oxford and Cambridge. No doubt a battle of the styles raged at the time, and occasional shots are still taken at Princeton's departure from her native style. But that departure was made, and there has been no swerving from the chosen road. While most other universities have been experimenting, Princeton has been adding to her architectural setting without the discordant notes of abandoned trials of different types of architecture.

Cope & Stewardson followed "Blair" with "Little" and the Gymnasium. These buildings, which then bounded the campus on the west, form a continuous line of English Gothic that turns and doubles in plan, with a roof in line that breaks up into towers and falls away with the contours of the land. It is only the recent group, built since 1921, that has reached beyond this limit. Benjamin Wistar Morris built " '79 Hall" in 1904, using a red brick that affords a pleasing variation from the local stone of other recent dormitories. "Patton Hall" is also the work of Mr. Morris, but here the nice balance of a carefully studied design was destroyed when the building committee substituted a coarse stone for that indicated on the drawings. Ralph Adams Cram, who was appointed supervising architect to the



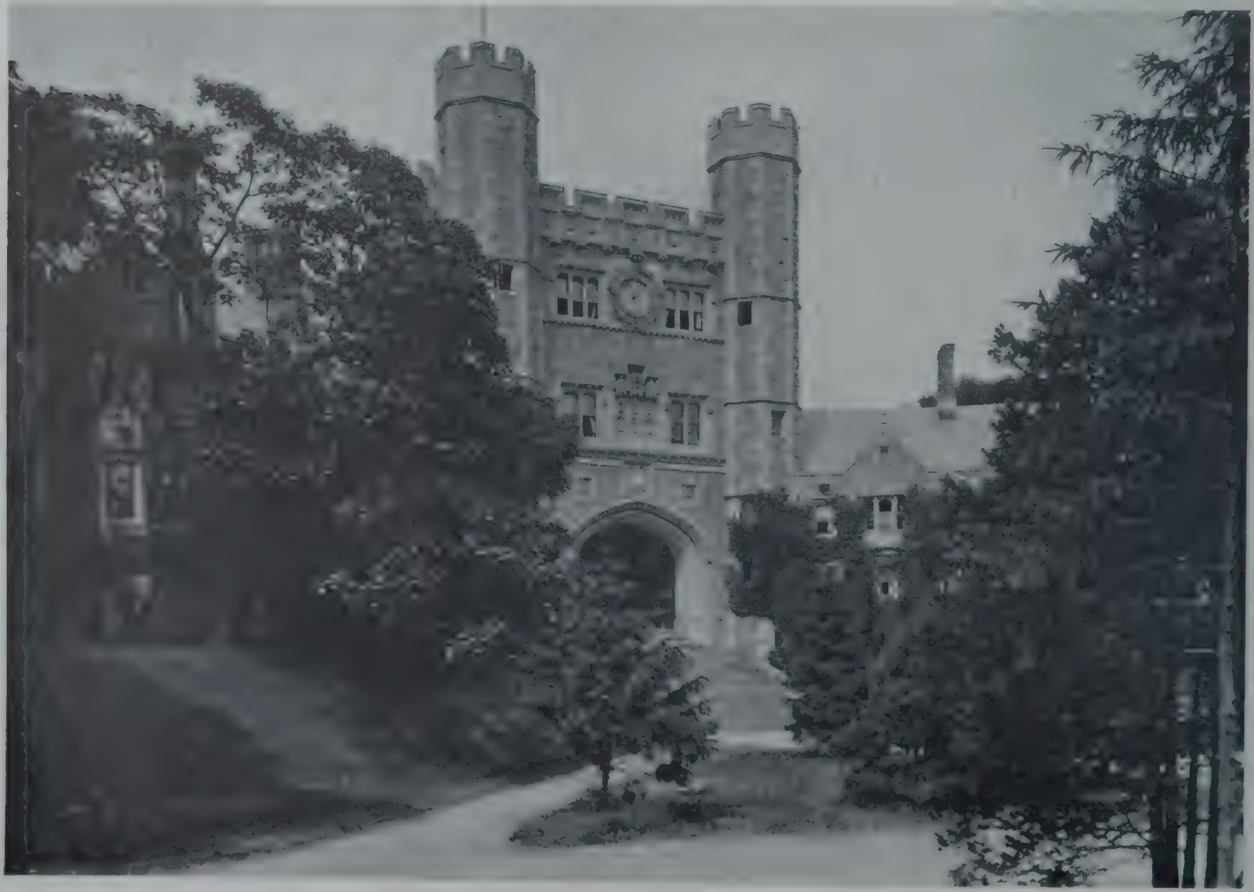
Ground Plans of Southwest Dormitory Group, Princeton University

Looking Toward Blair Arch, New Dormitory Group, Princeton University

University in 1908, built "Campbell Hall," which eventually will be joined to "Blair," once the intervening astronomical observatory has outlived its usefulness. This is the only undergraduate dormitory that Mr. Cram has built, and here he was restrained by the fact that he was making an extension of an older building. His Graduate College, which ten years of occupancy have proved to be satisfactory practically and increasingly satisfying æsthetically, is located apart from the rest of the University. The simple charm of Day & Klauder's "Holder" and "Hamilton Courts" constitutes a foil to the dazzling brilliance of their Dining Halls. "Cuyler Hall" is joined to the north end of "Patton," with its semi-court terminating the long stretch of the older buildings. It is a clever piece of planning, possessing its own charm as an architectural unit while fulfilling its obligations as part of a greater whole.

The Plan of the New Group. The new group of dormitories now awaits only the finishing of a small unit to attain completion. It is located outside the old campus boundary formed by the Cope & Stewardson buildings, and includes them in its ensemble. It occupies the site of the old railroad station and tracks that were removed in 1918 after the building of a new station to the south. With the branch railroad from the Junction running up past the Gymnasium and "Little," a great portal was built in "Blair" to form a gateway to the campus. Blair Arch is all that might be expected of such an entrance. It rises out of and is itself part of the dormitory; it has dignity without being monumental to a forced degree. The impression, as one mounts the steps, is perfect. The weight of the great portal is a little stern; one is about to be cut off from this outer universe of jangling trains and cities. Then appear through the arch the old buildings of Princeton and the trees, and the belfry of "Old North." One has come into the world of the University, with its peace and quiet.

Now the architects who laid out the plan for these



Entrance Gateway, Blair Hall, Princeton University
Cope & Stewardson, Architects

new dormitories doubtless felt all this, but perhaps they thought it involved simply an architectural effect. At any rate, they decided to retain the importance of Blair tower, and struck an axis from the tower to the railroad station, a distance of a quarter of a mile. This axis makes a pleasing image on paper, and axes have their place in expositions where placing a great midway is a legitimate striving for effect, or in a park where sheer sweep of vista is sought. But a university is a place somewhat apart from the rest of the world, where men spend a few years of their lives in associations, in study, and occasionally in quiet. This great, open gap is beautifully laid out and finely lined with undergraduate residences, to afford an imposing avenue for Princeton townspeople on their way to work in Trenton! This is the outcome of a striving for effect that architecture falls into once it becomes self-conscious and divorced from the natural processes which bring it into being. The thoroughfare has been justified to some by recalling a parallel from the middle ages. When walled towns outgrew their battlements, the new growth took place along the lines of the old roads that had led up to the gates. Likewise, it has been reasoned, since Princeton has outgrown the limits of "Little" and "Blair," the new developments should occur along the line of the now historic railroad. This is a choice bit of the sort of modern mediævalism that is accompanied by architectural artificiality. The beauty and distinction of Princeton can be better preserved by closing this open gap.

1901 Hall, Princeton University
Day & Klauder, Architects

Along the axis are arranged two groups of dormitories. Toward University Place are Zantzinger, Borie & Medary's "Henry" and "Foulke Halls"; on the opposite side are Day & Klauder's "Pyne" and "1901-Laughlin" dormitories. Both "Henry-Foulke" and "1901-Laughlin" are a story lower in height on their west sides than on the east, owing to a rise in ground from east to west which affects building.

The Planning of the Dormitories. There have

Entrance Detail, 1879 Hall, Princeton University
Benjamin Wistar Morris, Architect

Cuyler Hall, Princeton University
Day & Klauder, Architects

been two general schemes used in the Princeton dormitories. One plan provides for a two-and-a-half-story building, in which a suite of rooms flanks either side of the entry on each floor. The width of the building, about 35 feet including exterior walls, is fixed by the depth of the study plus the depth of a bedroom and closet. Since "Holder Hall" was finished in 1910 the cost of dormitory construction has increased from 35 cents per cubic foot to 79 cents in "1901-Laughlin" and 85 cents in "Foulke" and "Henry." In order to maintain its policy of realizing from room rentals a return of 4 per cent on its investment, the University has been forced to build the new dormitories three and occasionally four and a half stories high. Mr. Klauder's ready acceptance of the challenge of economic needs has won him the respect and regard of his business associates. His plan for "1901-Laughlin Hall" shows an alternate scheme now in use. The width of the dormitory, here about 30 feet, is determined by the shorter dimensions of two studies plus the width of the corridor which runs between. In this plan study and bedroom are arranged on the same side of the dormitory instead of running the suite through the building as in the "Holder" plan. The "1901" plan necessitates having fewer entries, and is generally more economical. In some cases a single room serves as both study and sleeping quarters. It has been found advisable to connect pairs of these study-bedrooms so that they may be rented as double suites, each room serving as study and bedroom for two men. These dimensions are in general those of "1901-Laughlin," and are now usual for Princeton dormitories, and the volume of air in sleeping rooms is not less than 748 cubic feet per man:

End View, Henry Dormitory, Princeton University
Zantzinger, Borie & Medary, Architects

Study-bedroom:	11 ft. x 15 ft., 6 ins.	=170 sq. ft.
Double study:	11 " " 16 "	=176 " "
Bedroom:	11 " " 7 " 6 "	= 82 " "

The Design of the New Dormitories. The southern end of "Henry-Foulke" builds up into a tower,—a pure *tour de force,* but effective from most angles. The two divisions, "Henry" and "Foulke," are joined together by an arcade which lines up with the end of Dickinson Street. Several lead statues fill niches in the building, and the detail is quite free and amply placed. A pronounced difference in scale is noticed between this work of Zantzinger, Borie &

Another View of Cuyler Hall, Princeton University
Day & Klauder, Architects

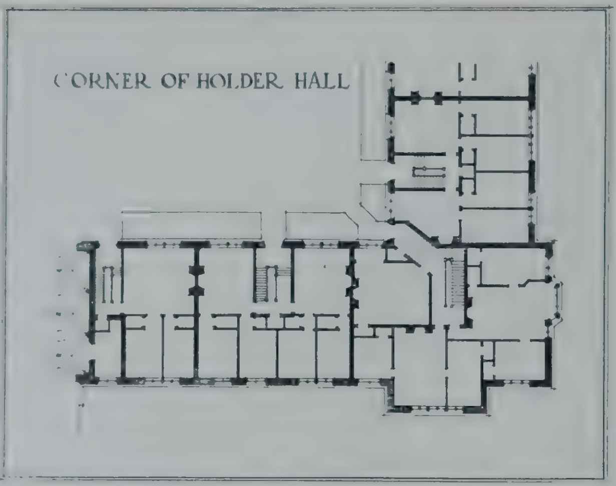
Medary and that of Day & Klauder, the detail of the former firm being considerably larger than the latter's.

Of Day & Klauder's two most recent Princeton dormitories, one was finished in 1922 and the other is just being completed. The first, "Pyne Hall," was built when the University felt an extreme need for rooms that could be rented at low prices. Mr. Klauder's broken roof line was straightened out to the unbroken run that we now see. The detail was cut down to almost a minimum. Doubtless this did not afford Mr. Klauder the most pleasing opportunity, for we remember his ideas about Gothic's being the style of variety and surprise in contrast with the quiet and peace of Classic design. But what Mr. Klauder can do with an unbroken wall surface, purely through study of proportions and openings, is shown in the facade of "1901-Laughlin Hall."

Construction. Dormitory construction has changed considerably during the last 30 years. "Blair" and "Little" are of Germantown stone. The limestone trim was cut by hand on the ground, due to a now obsolete belief that machine cutting "stunned" the face of the stone, causing a minute shattering of the structure so as to cause disintegration through frost. Princeton dormitories are now built of local stone with limestone trim. The stone is an argillite geologically evolved from a mud shale subjected to terrific pressure under water, thus giving the quarry many faces. The stone is laid up with a cut flush joint just as it comes from the quarry northeast of the town, without conscious arrangement of pattern. The trim of "Henry-Foulke" is in five distinct colors of Indiana limestone, running from buff to gray. The trim used for "1901 Hall" is variegated in shade, running between two limits of color values.

The floors of "Little" were constructed with two sets of joists, one set carrying the floor, the alternate set, which was laid 2 inches lower, carrying the ceilings. This was an economical method of securing insulation against sound. In the fireproof construction of the recent dormitories, Zantzinger, Borie & Medary have specified a tin pan system for building floors, while Day & Klauder have used hollow tile with concrete joists. These latter systems have displaced use of the 5-inch slabs with wire mesh used in "Holder" and the Graduate College. Partitions are of hollow tile faced with rough plaster in which a

Facade Detail, One of Southwest Group Dormitories, Princeton
Zantzinger, Borie & Medary, Architects



Typical Floor Plan, Holder Hall, Princeton University

gray bar sand is mixed to give texture and a yellow sand used to give warmth of color. Stairs are fireproof, built of 4-inch concrete slabs reinforced, with simple iron railings set in the concrete. Roof rafters are of structural steel with 2-inch wood sheathing as a base for nailing the slates used for roofing.

The slate roofs of the group show considerable variation; on "Pyne Hall," Day & Klauder used a more varied range of colors than in their earlier work. The roofs of "Henry" and "Foulke" show an even greater spotting of purple and brown, thus carrying out the more alive treatment of their surfaces. In "1901 Hall," Day & Klauder have reverted to a more restrained use of the darker shades than in "Pyne." The nice balance that produces both quiet and interest in this roof is an extremely subtle matter, and so a record of the formula may be valuable. The slate, with rough butts and sides, was furnished in these excellent proportions:

50 per cent unfading green;
25 per cent variegated green and purple;
25 per cent light and medium gray..

The pitch of the roof rafters is 50° 30′ from the horizontal, and the slate was laid with diminishing courses according to this schedule commencing at the eaves always with the largest and heaviest slates: 5 courses ¾ in. thick, weathering 10½ ins.; 6 courses ⅝ in. thick and weathering 9½ ins.; 7 courses ⅝ in. thick, weathering 8½ ins.; 8 courses ½ in. thick, and weathering 7½ ins.; 6 courses ½ in. thick., weathering 6½ ins.; 5 courses ⅜ in thick and weathering 5½ ins.

Back before the war the Philadelphia Chapter of the American Institute of Architects visited Princeton. As one of the results of the members' architectural pilgrimage, they placed a tablet in "Blair Hall," beautifully designed and carved, to the memory of the architects of that building. A freshman, who evidently believed what he read, long held a high regard for the "Faia brothers" as the architects of the building. The tablet has been dedicated to WALTER COPE FAIA and JOHN STEWARDSON FAIA. He never knew quite how to pronounce the name of this fraternal firm, but we may be sure that during the four succeeding years he learned something of architecture.

Dormitory	Total Cost	Cost per Cu. Ft.
"1901-Laughlin"	$550,000	79 cents
"Henry-Foulke"	600,000	85 "
"Pyne"	500,000	about 80 "

The cubic foot cost of "1901-Laughlin" does not include the heat connection from the power house, nor that of "Henry-Foulke" the connecting arches.

Foulke Dormitory, Princeton University
Zantzinger, Borie & Medary, Architects

Planning Gymnasiums

By AARON G. ALEXANDER

Of the Office of Hobart B. Upjohn, New York

IT seems only a few years ago that the only gymnasium in town was in the Y. M. C. A. Most of the high school winter athletics were practiced and played in the "Y" gymnasium, and I recall that in the public school I attended, I practiced basketball in an unfinished cellar. What a change has come over all this in a few short years! Today no school or college is complete without a gymnasium. It certainly is a wonderful institution, especially in the more crowded cities, and it has won its place in our life.

The problem of planning a gymnasium may seem at first to be rather easy,—just a gymnasium, locker rooms and pool. But when you consider the advance made in teaching athletics and the interest taken by the public in indoor sports, the problem seems to be of considerable size. The architect has to consider and advise on such items as organization; the gymnasium's class and location; auxiliary gymnasiums; pools, lockers, etc., as well as on all the details of mechanical installation necessary to properly heat, light and ventilate each unit, and other matters.

Let us consider the requirements of a gymnasium for a college of approximately from 3000 to 4000 students. First as to organization, for usually a college of this size requires compulsory athletic training during one or two years of the course. This means regular athletic directors and assistants and quarters for them. In addition, there are all the "teams" such as those for basket ball, indoor baseball, handball, squash, football, rowing, water sports, etc. These require special rooms in some cases, as well as special coaches' and trainers' quarters and separate complete quarters for visiting teams. When one considers all these, along with the main gymnasium not only large enough for standard games but of sufficient seating capacity to accommodate audiences large enough to sustain the athletics, one can soon realize that the architect has a real problem to solve in planning such an exacting building.

The physical director in charge, and his assistant, should not be located merely off the gymnasium, but should control the entrances to and the exits from the physical departments. The gymnasium, locker rooms, shower rooms and swimming pool constitute the main physical departments. The locker rooms and showers are generally located beneath the gymnasium, and the nearer to it the better. The locker rooms and baths are the most closely related of all departments, and each must be easily accessible from the other, and naturally under the heading of baths is included the swimming pool, which it is quite important should be easily accessible from the showers.

If possible, plan the pool partly *outside* the main building, so as to have a skylight over it. It has been demonstrated that a dark, poorly lighted pool will become filled with organic matter which infects water much more quickly than a well lighted pool. In addition to this skylight, have all the windows possible. The size of the pool is usually determined by the funds available. A pool 35 feet wide by 75 feet long is excellent for a college. This gives six 5-foot racing lanes, the two outside or end lanes on each side being 2 feet, 6 inches from the side, which is official for racing. The depths should be plainly marked in the

Perspective of Men's Gymnasium, University of Illinois, Urbana, Ill.
James M. White and Charles A. Platt, Architects

Gymnasium, Smith College,
Northampton, Mass.
J. W. Ames and E. S. Dodge, Architects

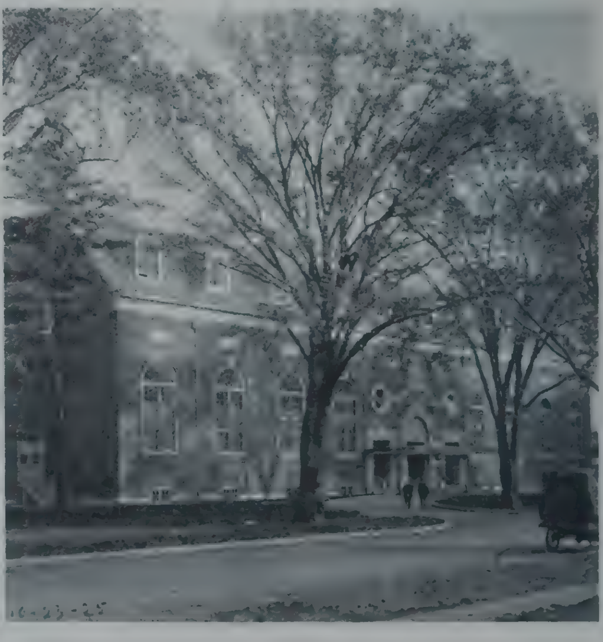
Gymnasium, North Carolina State College of
Agriculture, Raleigh, N. C.
Hobart B. Upjohn, Architect

border, ranging from 3 feet, 6 inches, to 8 feet at the deepest part, which should be 12 feet from one end, with colors usually following those of the college. It is also a great saving to use a glazed brick wainscoting around the pool, since it can be built as part of the masonry walls. The pool should be situated a little off center of the room, so as to allow space for the spectators at one side and at the end, leaving a narrow end and side for the contestants. Under the wide end the filters, pumps, etc., can be economically placed, since the pool should never be just sunk in the ground but should have a trench all around it for pipes, etc. The specifications of the different materials to use for lining the pool and for its construction, filtration, etc., would fill a fair sized book, but suffice it to say that the usual lining is ceramic tile on waterproof concrete with tile overflow gutter and chemical filters, water being pumped into the pool by circulating pumps. There is a vacuum system for a pool for removing growth or sediment that accumulates at the bottom of the pool without emptying it.

The shower room, which must be situated between the pool and the locker rooms, should have its showers controlled by mixing valves, which should be under the direction of the physical director, who in this way is able to fix the proper temperatures of the water used. One or two cold water showers are generally installed, since they are almost certain to be called for.

The locker room offers, of course, the next problem, and it must be properly heated and ventilated. This department has received considerable thought of late because of the odors from the gymnasium clothes, which are anything but agreeable. The size of the locker room depends upon the system of the locker equipment adopted. The best and most efficient planning includes the provision of large lockers of a sufficient number to take care of the largest number of students that may use the gymnasium at one time. Provision must be made for both the incoming and the outgoing classes. In addition to the large lockers, there are often smaller lockers or drawers where the gymnasium suits of the students are kept. The student first goes to the small lockers, obtains his gymnasium suit, and then proceeds to the

Gymnasium, Manhattan College,
Riverdale-on-Hudson, N. Y.
James W. O'Connor, Architect



Men's Gymnasium, University of Illinois,
Urbana, Ill.
James M. White and Charles A. Platt, Architects

Millhiser Memorial Gymnasium, Richmond College, Richmond, Va.
Cram & Ferguson, Architects

Yost Field House, University of Michigan, Ann Arbor, Mich.
Smith, Hinchman & Grylls, Architects

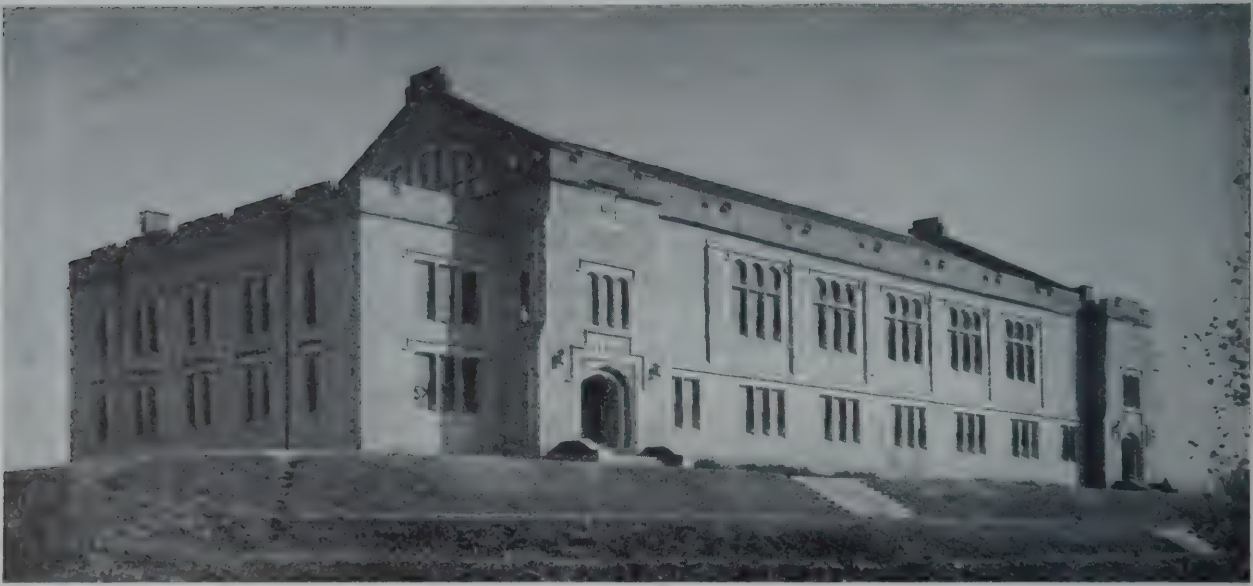
corresponding large locker and places his day clothes in it until he is through exercising. When he dresses, he replaces his gymnasium suit in the small locker, leaving the large locker for the next student. In this way as many as four or even six students can use one large locker, and the gymnasium suit, being kept separately, may be placed in another room, where it can be properly dried out. The latest system includes even a washing machine, so that the pupil is given a clean suit each time he uses the gymnasium, though giving this service is rare.

Usually the remainder of the lower floors of a gymnasium is given up to bowling alleys and storage facilities, as well as to visiting teams' quarters. The quarters of the visiting teams should, of course, contain rubbing rooms, dressing rooms, lockers and showers, all being complete units. If military training is given in the college, a large armory for the storage of military equipment is likely to be included on this floor. This armory is also useful for drilling.

The main gymnasium should be placed above the ground so as to receive all the light possible. The use of a skylight is advisable, as is also use of the largest windows that can be placed in the side walls. These windows must not be close to the floor of the gymnasium, because cross light on a playing court is not considered the best. The size of the gymnasium should not be determined so much by the number who will use it as by the character and the kinds of exercise which are to be taught and by the policy of the gymnasium's organization. Anything less than a 40 by 60 gymnasium is too small for standard indoor games. Most college gymnasiums have at least two practice standard baseball courts. The width of the main room should be approximately two-thirds its length. This shape usually serves best for the apparatus work, games and classes, as well as permitting the best design of a running track, if one is installed. For exercising, 45 square feet are generally allotted to each person. The height of the bottom of the trusses, to which apparatus may be hung, should never be less than 16 feet. This is the standard height for basket ball also. If a running track is installed, it is generally 12 feet above the

Gymnasium, Smith College, Northampton, Mass.
J. W. Ames and E. S. Dodge, Architects

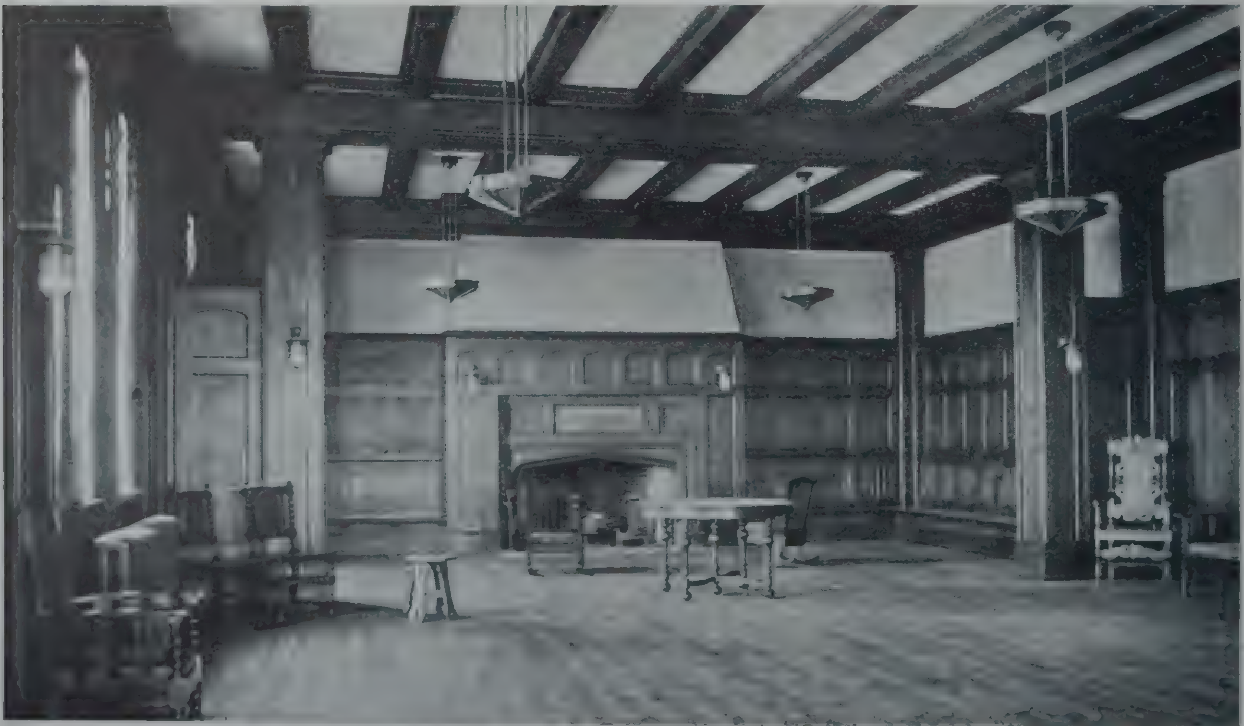
Swimming Pool, Smith College Northampton, Mass.
J. W. Ames and E. S. Dodge, Architects



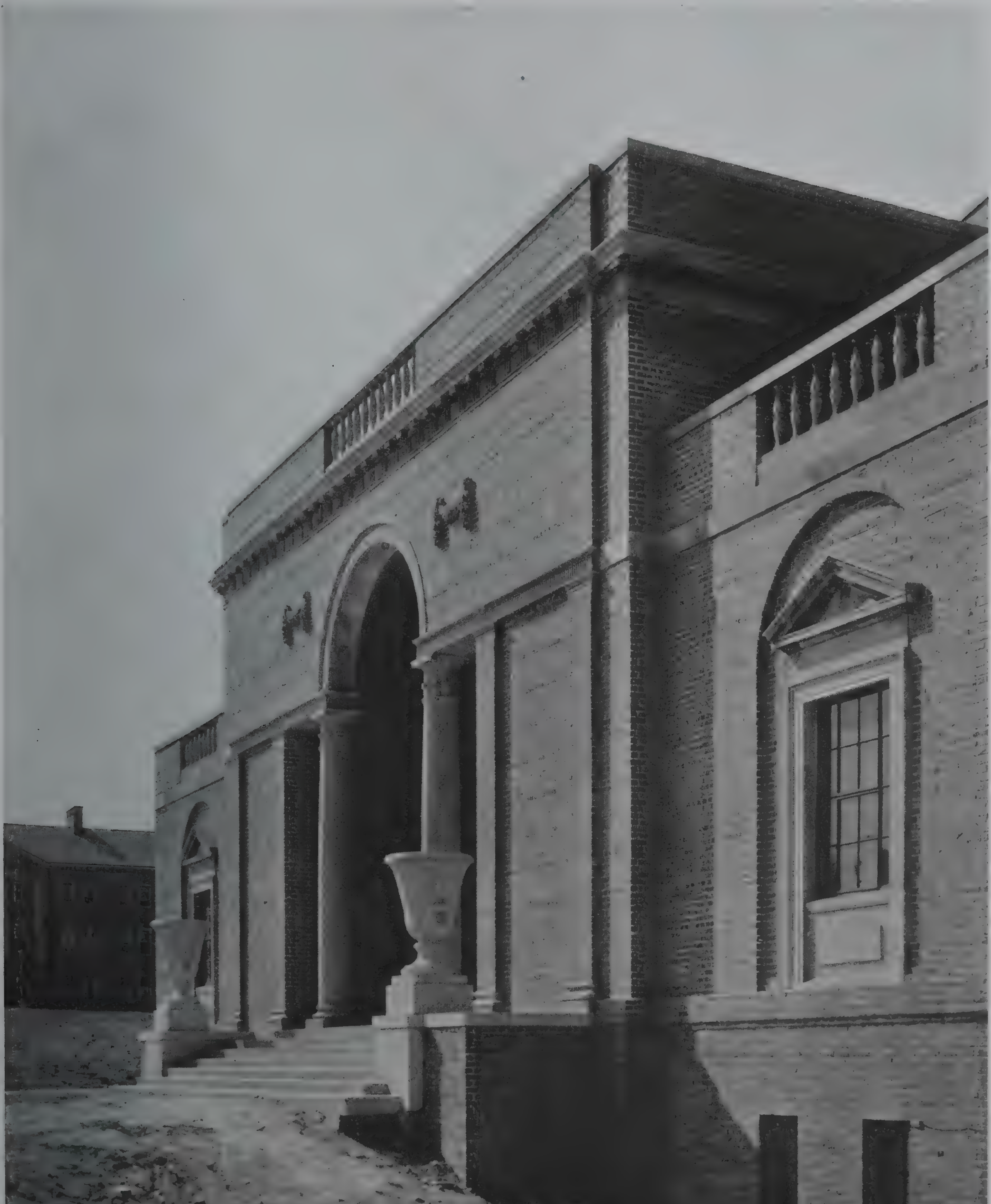
Gymnasium, University of Indiana, Bloomington, Ind.
R. P. Daggett & Co., Architects

floor, and is banked at the ends. Seating of spectators in the gymnasium is generally taken care of with collapsible bleacher seats. In heating a gymnasium it must be borne in mind that wall radiators, not less than 6 feet above the floor at the lowest point, are the best and that a temperature of from 62 to 65° Fahr. is preferable; also that change of air at the rate of 7,000 to 9,000 cubic feet per hour, while classes are exercising, should be arranged for.

Provision of apparatus is a general problem for which architects have a lot of data, and this again is dependent upon the policy of the organization and the views of the athletic directors. Many times provision of an auxiliary gymnasium, where special classes may be formed, is desirable. In this auxiliary gymnasium special apparatus can be installed for the development of certain branches of sport not indulged in by the majority of students, such as rowing, etc. Consideration should also be given in planning to the convenience of the spectator, and he should enter in such a way as to not interfere with any of the sports he is to view. This last mentioned detail is of particular importance, and it should be carefully studied by the architect of a gymnasium.



Club Room, Gymnasium, University of Indiana, Bloomington, Ind.
R. P. Daggett & Co., Architects



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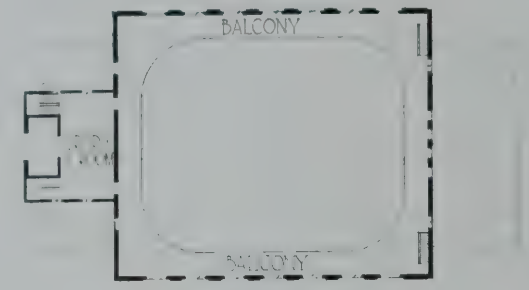
ENTRANCE, GYMNASIUM

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE, RALEIGH, N. C.

HOBART B. UPJOHN, ARCHITECT



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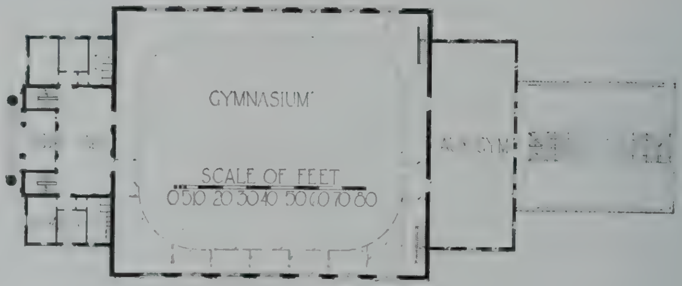

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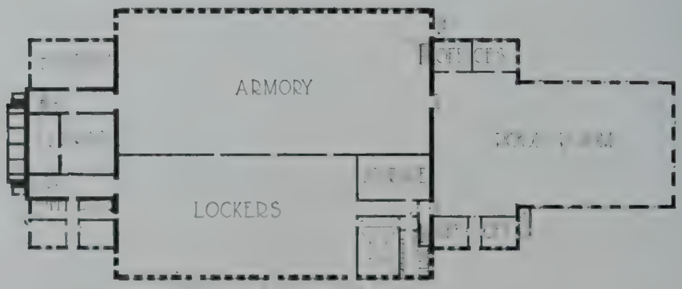
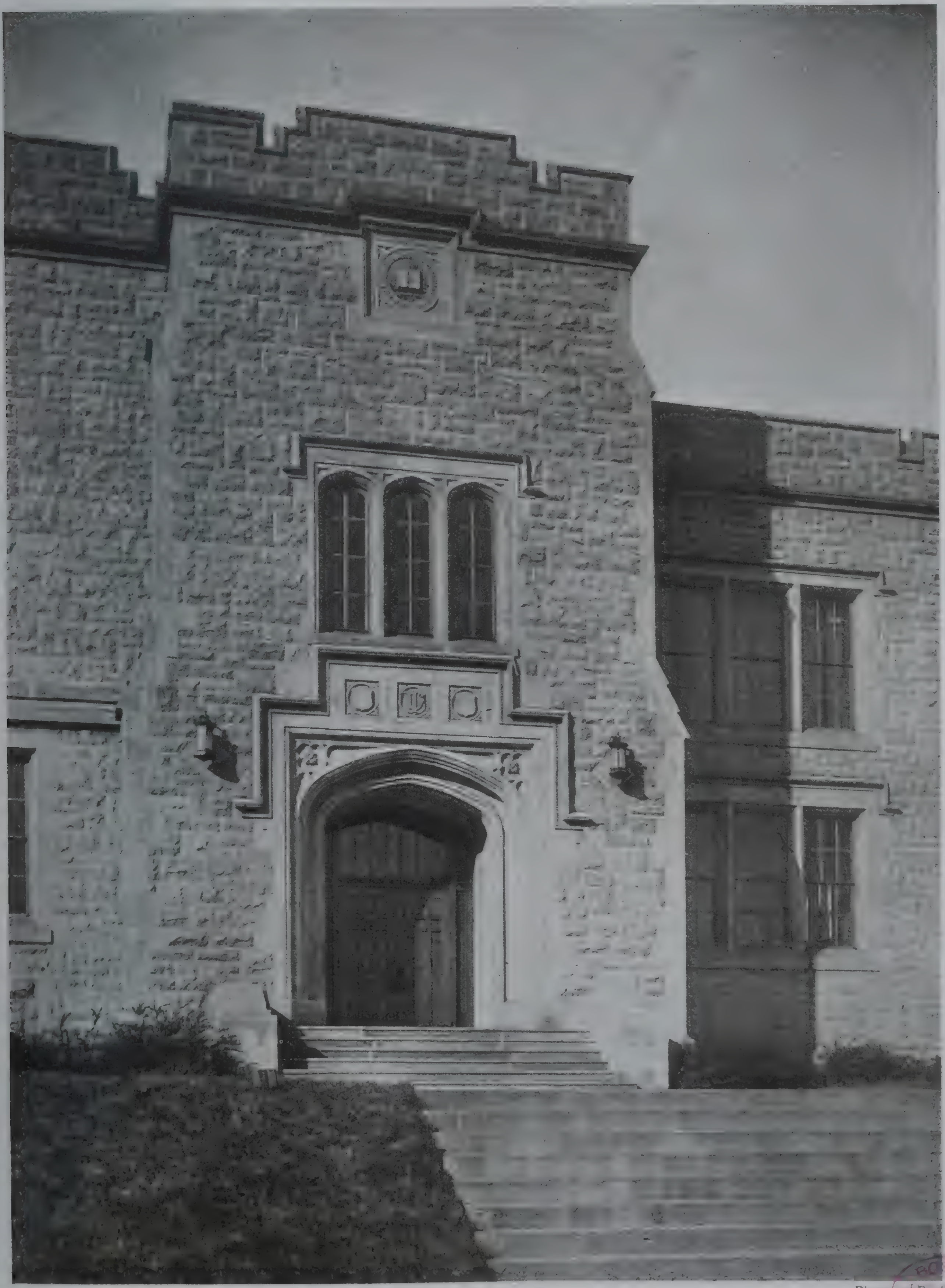


BASEMENT

PLANS, GYMNASIUM, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE, RALEIGH, N. C.

HOBART B. UPJOHN, ARCHITECT



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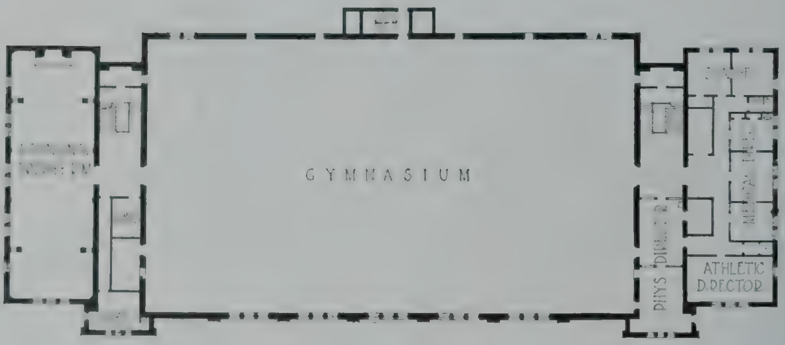
ENTRANCE, GYMNASIUM
UNIVERSITY OF INDIANA, BLOOMINGTON, IND.
R. P. DAGGETT & CO., ARCHITECTS



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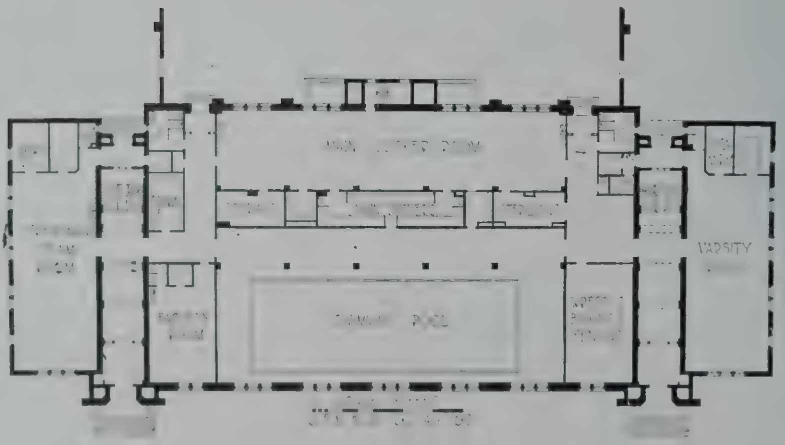

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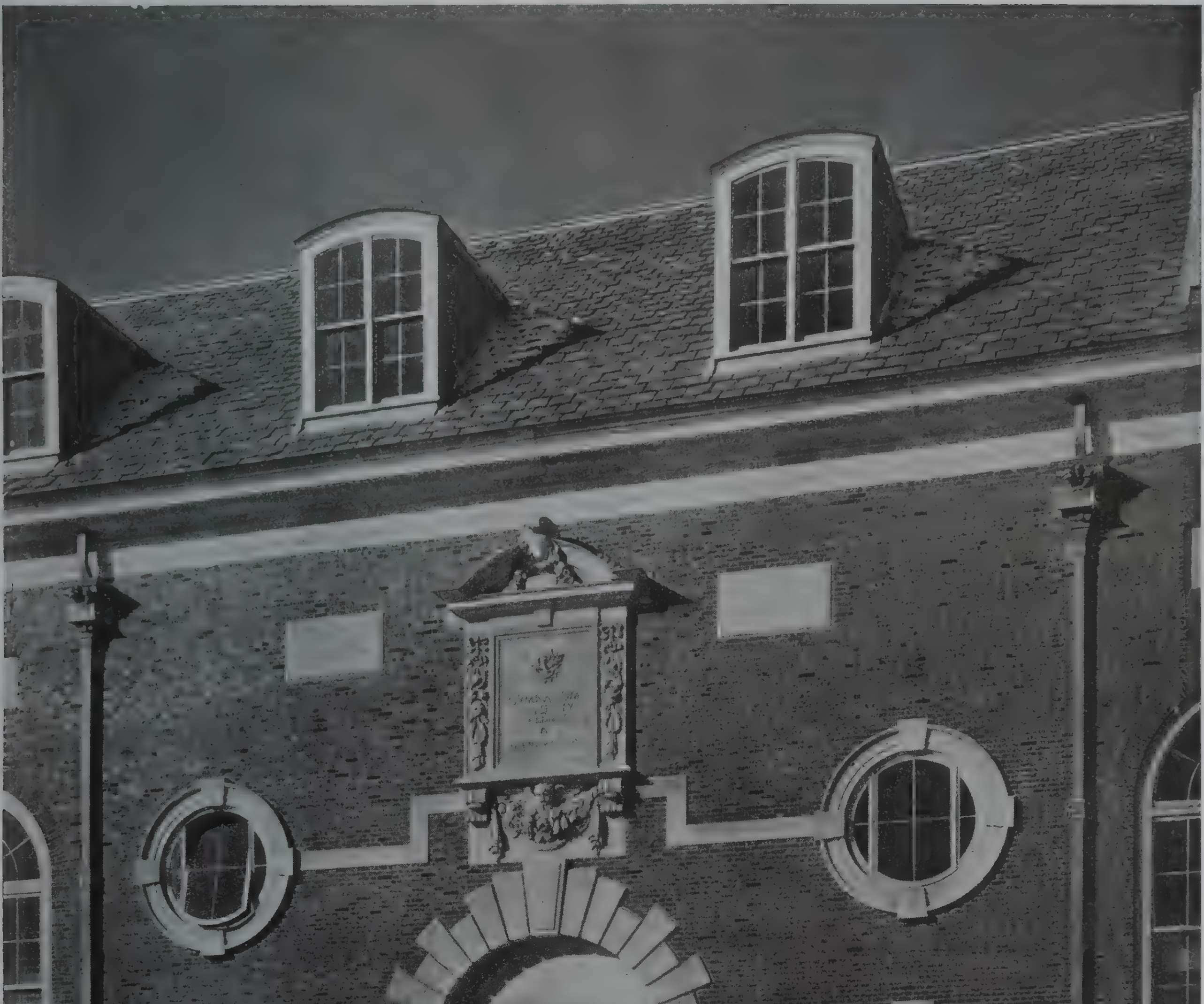
PLANS, GYMNASIUM, UNIVERSITY OF INDIANA, BLOOMINGTON, IND.

R. P. DAGGETT & CO., ARCHITECTS



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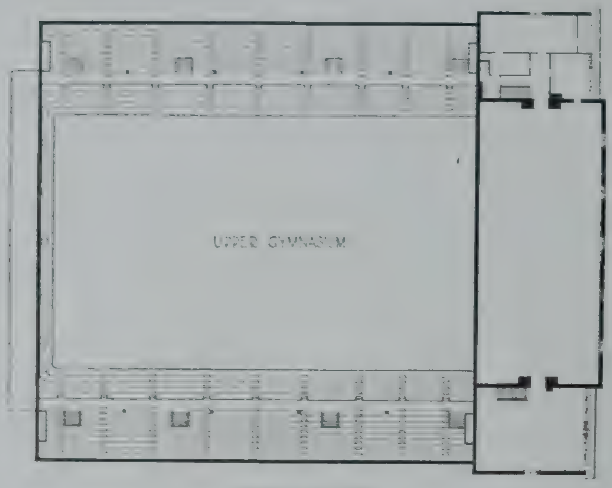
Plans on Back

EAST ENTRANCE, MEN'S GYMNASIUM
UNIVERSITY OF ILLINOIS, URBANA, ILL.
JAMES M. WHITE AND CHARLES A. PLATT, ASSOCIATED ARCHITECTS



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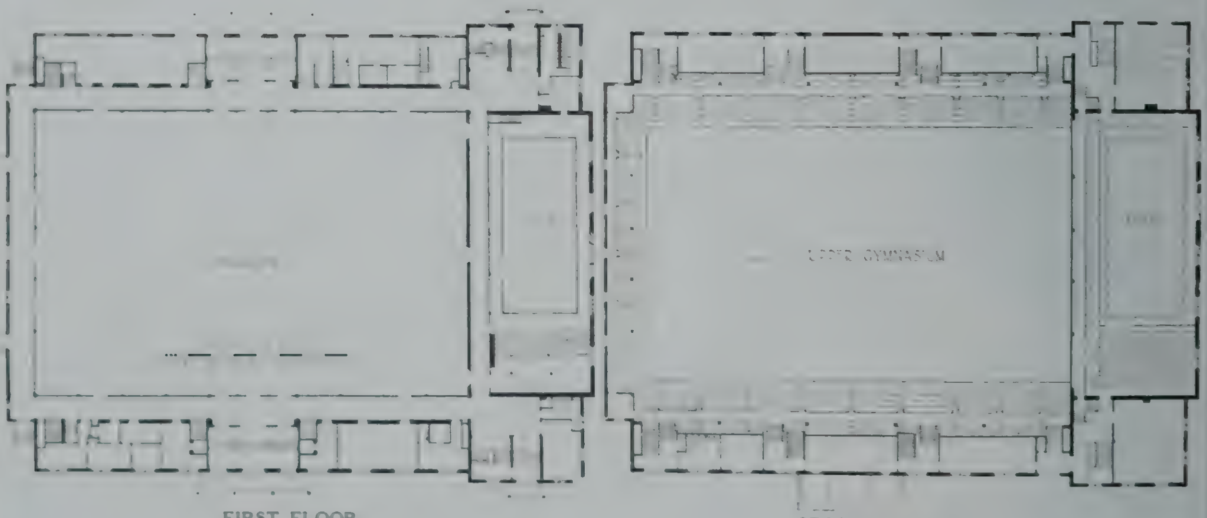

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SECOND FLOOR

PLANS, MEN'S GYMNASIUM, UNIVERSITY OF ILLINOIS, URBANA, ILL.

JAMES M. WHITE AND CHARLES A. PLATT, ASSOCIATED ARCHITECTS

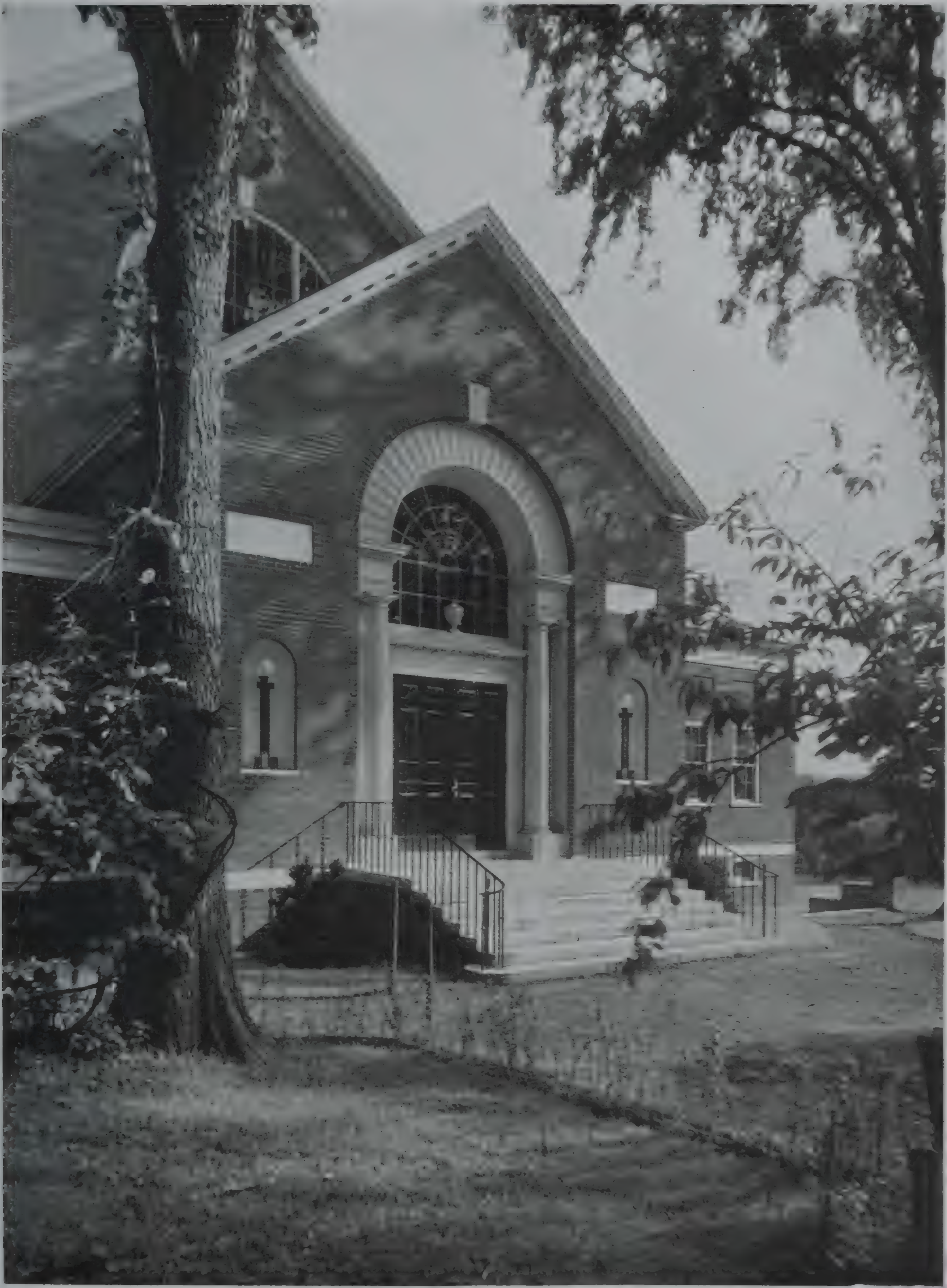

Photo. Paul J. Weber

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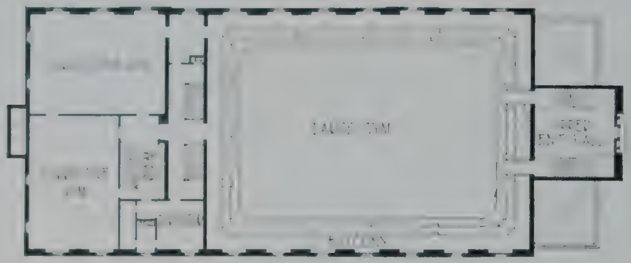
ENTRANCE, GYMNASIUM
SMITH COLLEGE, NORTHAMPTON, MASS.
J. W. AMES AND E. S. DODGE, ARCHITECTS



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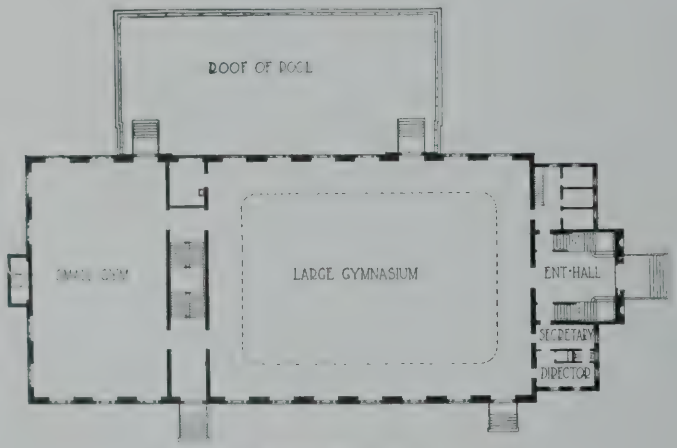

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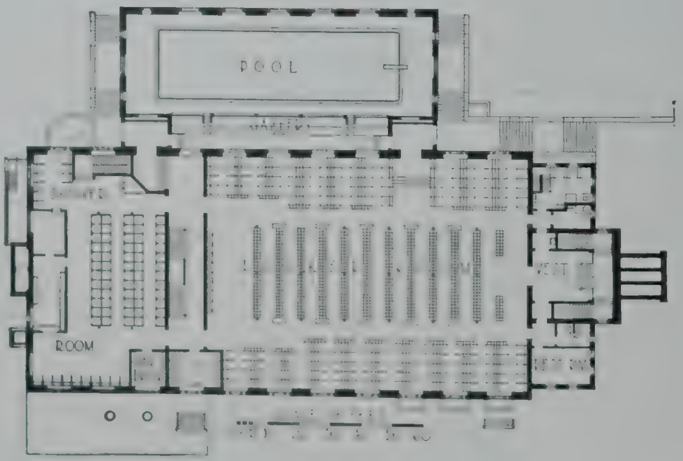
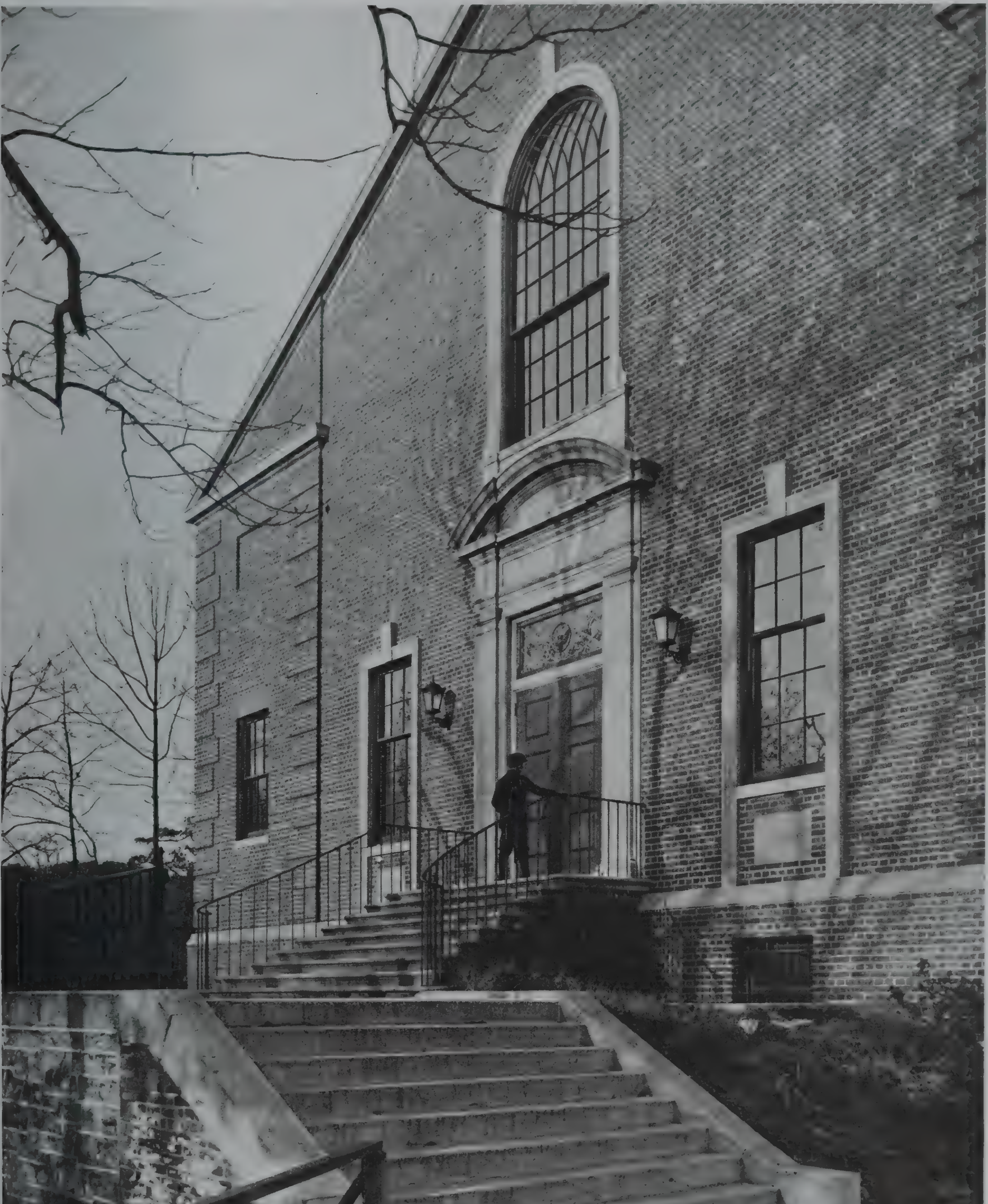


BASEMENT

PLANS, GYMNASIUM, SMITH COLLEGE, NORTHAMPTON, MASS.

J. W. AMES AND E. S. DODGE, ARCHITECTS



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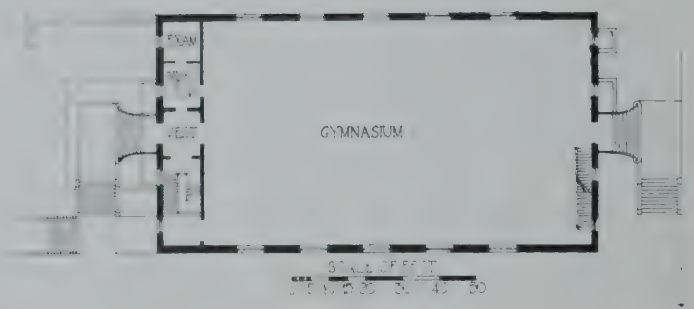
Plans on Back

ENTRANCE, GYMNASIUM

MANHATTAN COLLEGE, RIVERDALE-ON-HUDSON, N. Y.

JAMES W. O'CONNOR, ARCHITECT



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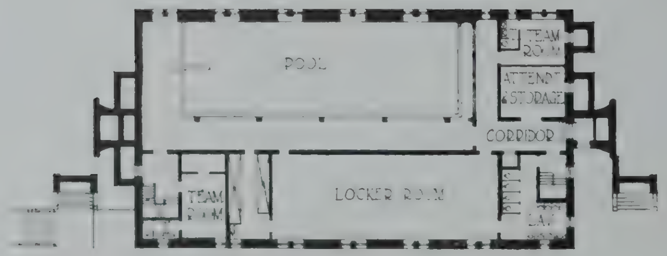

BASEMENT

PLANS, GYMNASIUM, MANHATTAN COLLEGE, RIVERDALE-ON-HUDSON, N. Y.

JAMES W. O'CONNOR, ARCHITECT

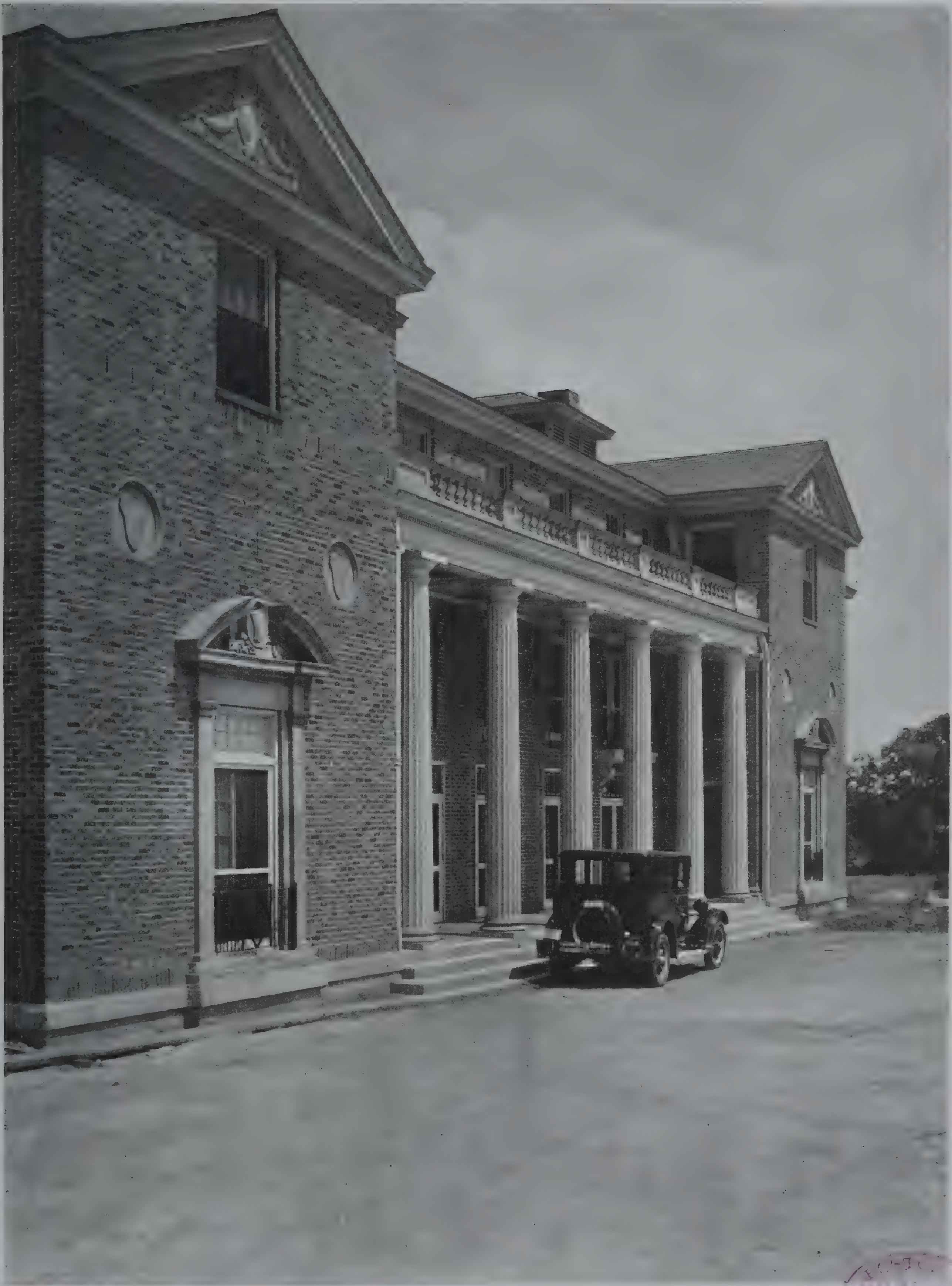

Photo. Tebbs & Knell, Inc.

DORMITORY, COLUMBIA THEOLOGICAL SEMINARY, COLUMBIA, S. C.
WILSON, BERRYMAN & KENNEDY, ARCHITECTS

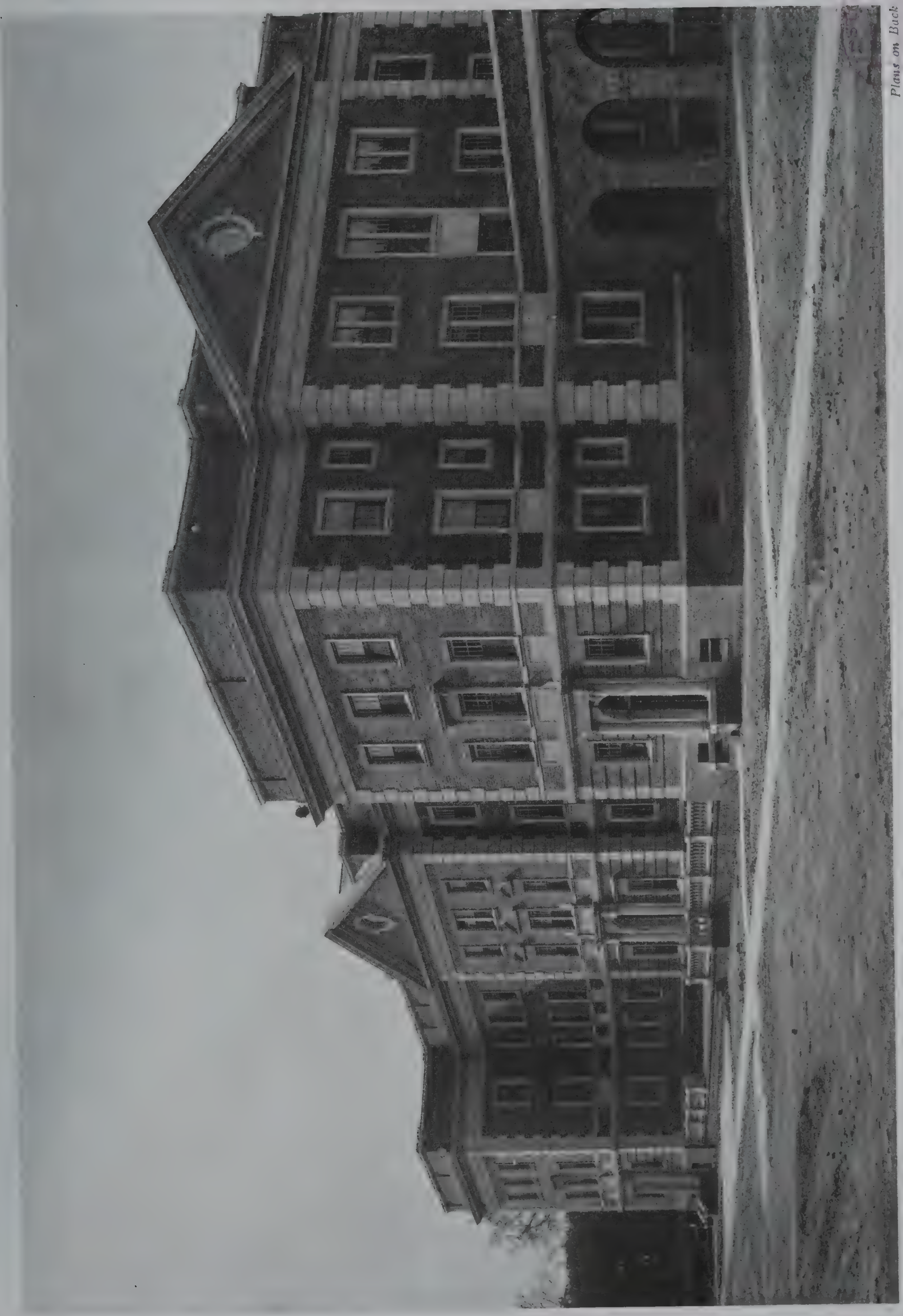

Photo. Tebbs & Knell, Inc.

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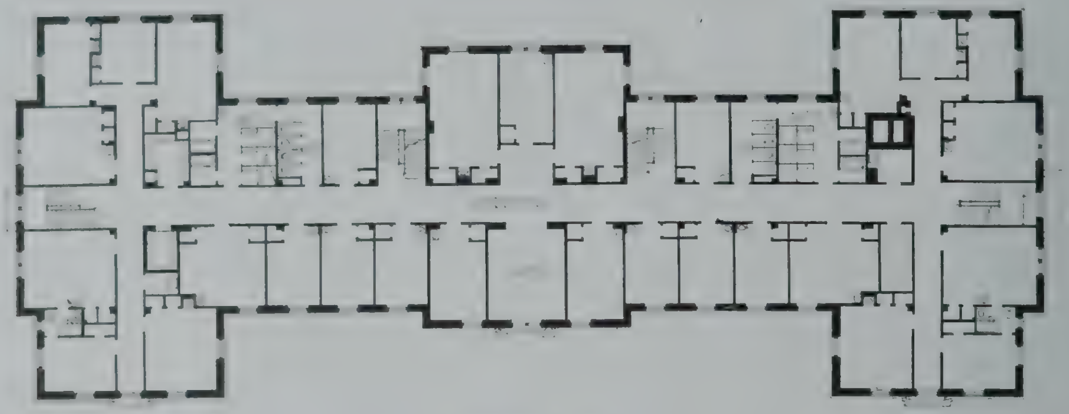
DORMITORY, THEOLOGICAL COLLEGE FOR LAY WORKERS, RICHMOND, VA.

BASKERVILLE & LAMBERT, ARCHITECTS



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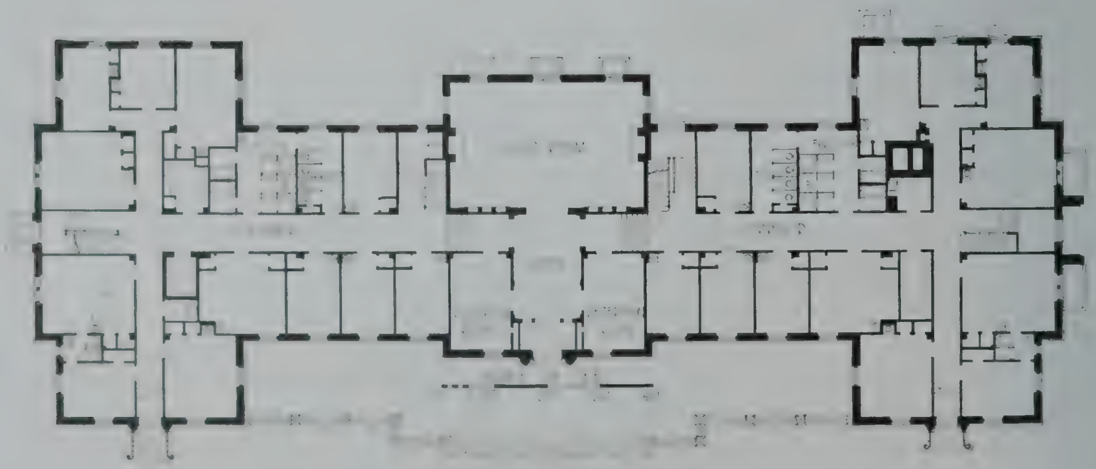

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PLANS, DORMITORY, THEOLOGICAL COLLEGE FOR LAY WORKERS, RICHMOND, VA.

BASKERVILLE & LAMBERT, ARCHITECTS

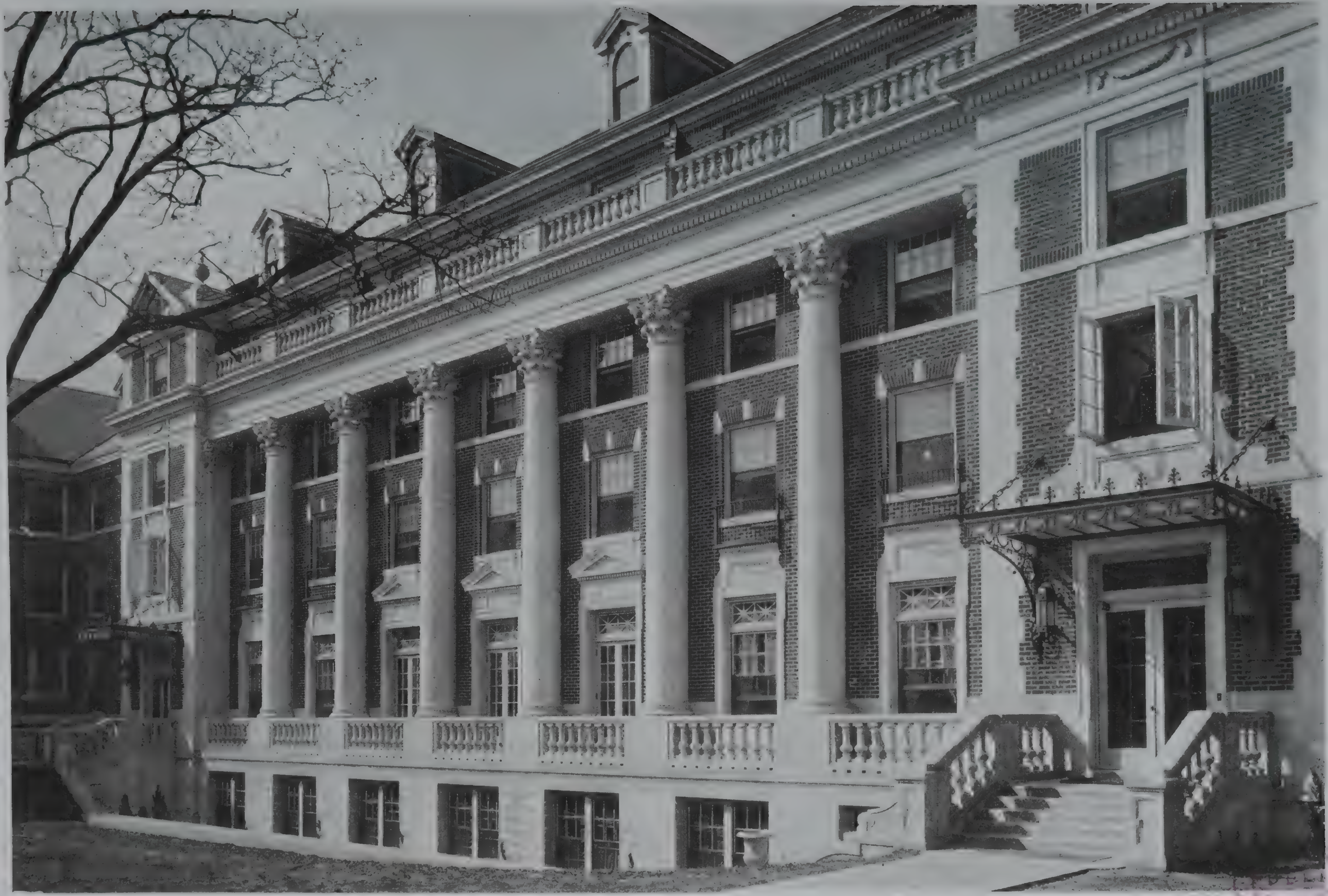
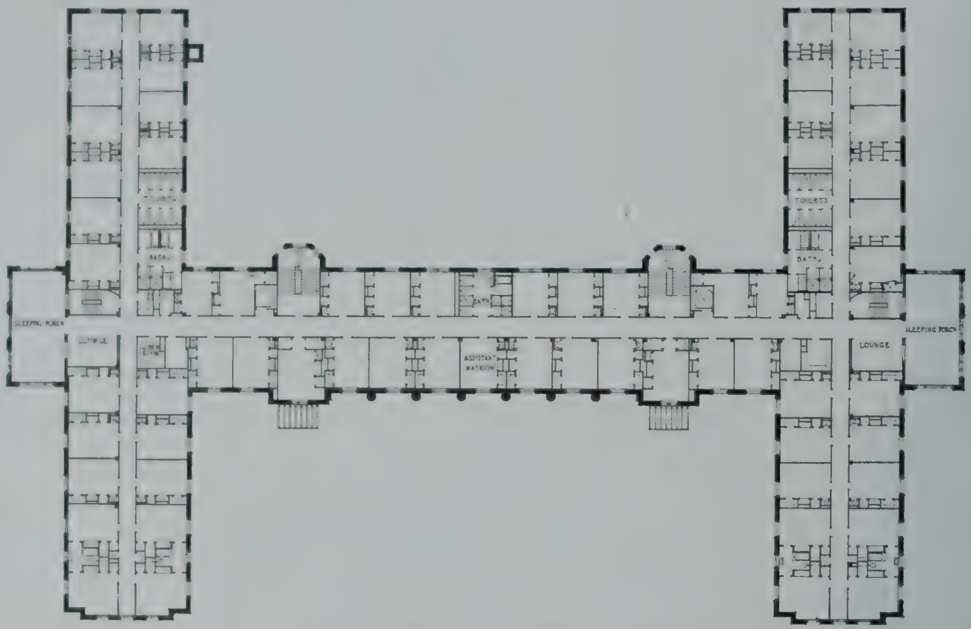


Photo. Jordan Company

Plans on Back

SOUTH FRONT, SCOTTISH RITE DORMITORY FOR WOMEN
UNIVERSITY OF TEXAS, AUSTIN, TEX.
HERBERT M. GREENE COMPANY, ARCHITECTS



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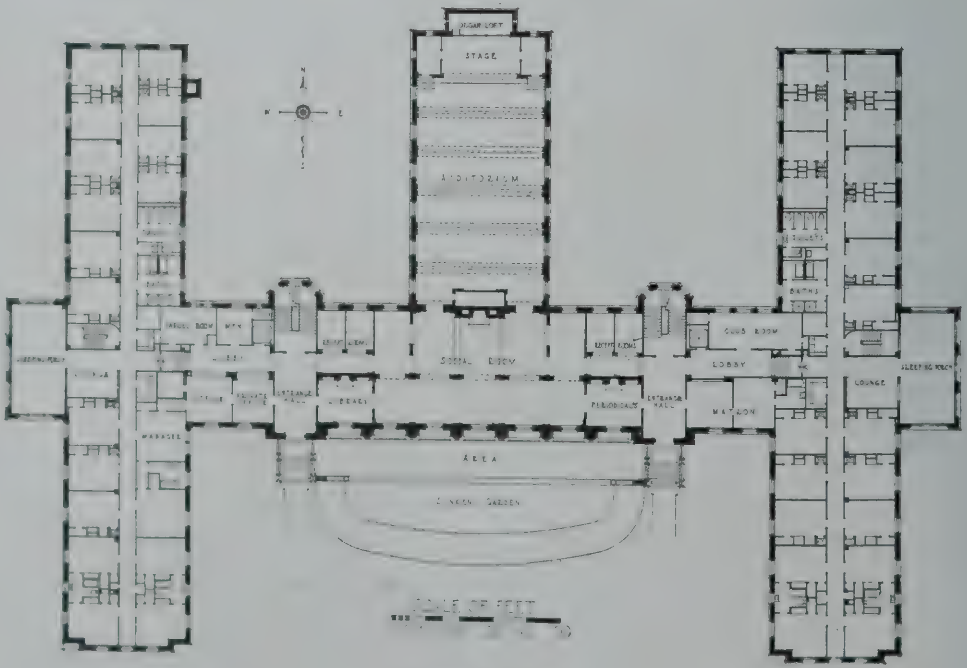

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PLANS, SCOTTISH RITE DORMITORY FOR WOMEN, UNIVERSITY OF TEXAS, AUSTIN, TEX.

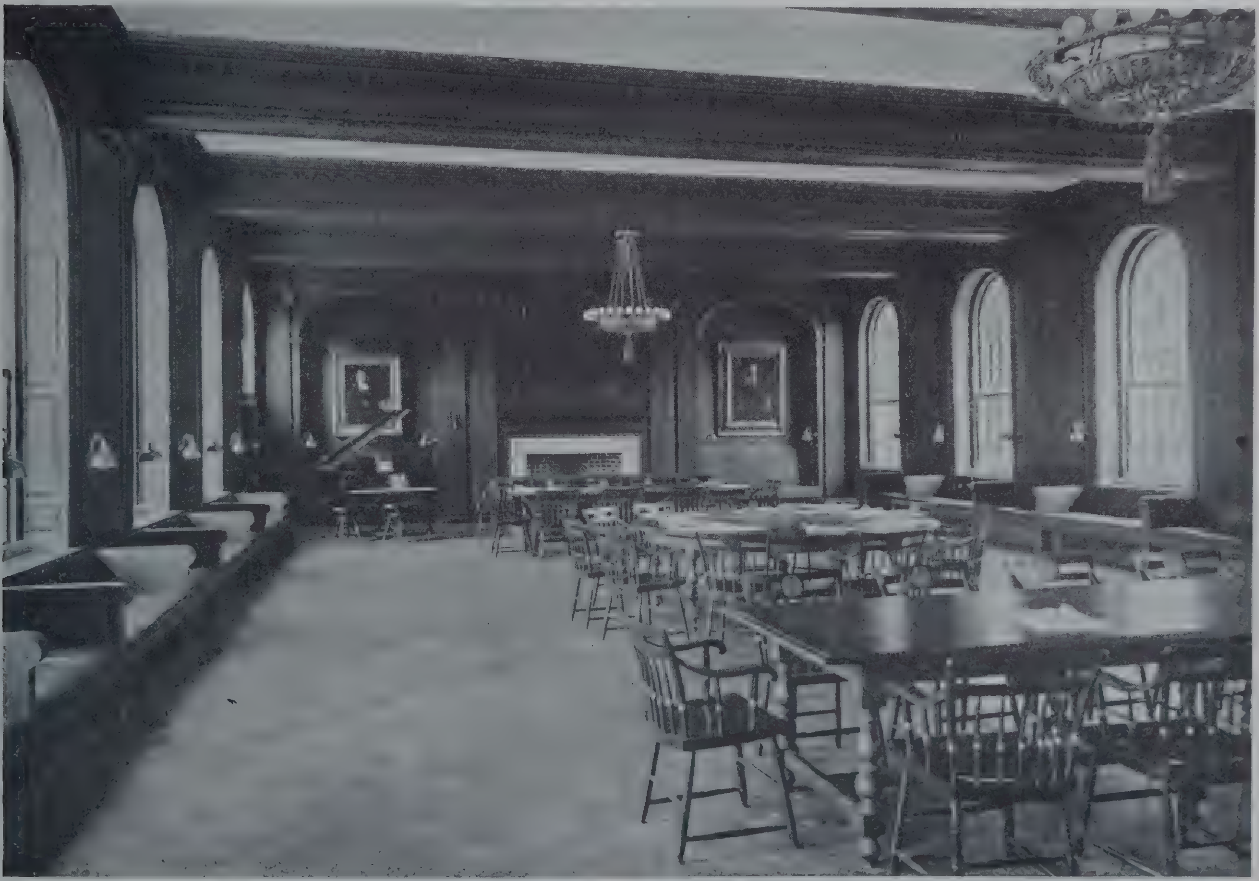
HERBERT M. GREENE COMPANY, ARCHITECTS

Common Rooms and Dining Halls

By LEIGH FRENCH, JR.

AN indication of the importance of attractive physical environment, which gives reason for the production of objects of decorative art, may be found in the character which is being given to many of the dining halls and common rooms of great and small educational institutions in America. Here we find given practical exemplification the theory that dignified and beautiful surroundings exert upon those who are associated with them an influence which makes for greater human happiness. It is this consideration which gives a reason for the erection of fine rooms, for the creation of fine furniture and other appointments,— the æsthetic reactions which such things draw from those who are conscious of their qualities, as well as from those who are only subconsciously affected, although influenced, by harmony of color, line, proportion and texture.

There is a far-reaching tradition behind the present treatment of the general rooms given over to students, such as refectories and common rooms. A composite of the great halls of the castles and manor houses of the earliest date and the monastic refectories of the middle ages, the dining halls of English colleges took on a special dignity of their own. From earliest times the ceremony of breaking bread, responsive to one of the most primitive instincts of mankind, has been surrounded with a certain formality and ceremony wherever civilized peoples have developed an organized social life. In mediæval England, the meals in the great hall typified the feudal spirit of the time, the social distinctions of those at table being emphasized by their seating. On a raised dais at the end of the hall sat the lord of the manor with his family and guests of equal rank. Below them came the upper servants, who were seated in order of their relative importance in the scheme of the household organization. In collegiate dining halls much this same seating scheme was observed. On a raised dais at one end sat the masters or others who represented the authority of the college. Below them, at the long tables, sat the students. This scheme is followed in many dining halls of American universities, more particularly in graduate colleges, where faculty and students mingle more closely than in undergraduate life. In the general run of dining halls for undergraduates, the raised dais is omitted, the whole room being given over to long tables for students. In larger colleges and universities each of the different classes has its own dining hall; in smaller colleges, one large dining



Common Room, Smith Hall, Harvard Freshman Dormitories

Shepley, Rutan & Coolidge, Architects

Dining Room, Smith Hall, Harvard Freshman Dormitories

Shepley, Rutan & Coolidge, Architects

Common Room, Smith Hall, Harvard Freshman Dormitories

Shepley, Rutan & Coolidge, Architects

is variety in the use both of naturally finished wood trim and of painted woodwork and paneling. The fireplaces, as is proper, form the center of the decorative scheme. These lounge rooms, libraries and refectories in the Freshman Dormitories acquire a certain veracity of effect through the consistency between the exteriors of the buildings and the interiors.

The Social Room of the Scottish Rite Dormitory for Women at the University of Texas possesses little more than the correctness of hotel architecture. It recognizes no original prototype, and yet fails to create any real form of its own. The architectural treatment, however, forms a harmless background for the furnishing, which in itself is very inadequate.

There would seem to be one general tendency in designing such interiors as these which we are considering,—this is to refer or relate the design to some earlier prototype, but, whether because of shortness of funds or lack of appreciation of the finer and essential points of the design, to stop short of a completely studied and really satisfactory result. This is unfortunate, since such great rooms as are required in collegiate or university buildings present an opportunity for achieving a distinguished effect.

Common Room, Standish Hall, Harvard Freshman Dormitories, Cambridge, Mass.

Shepley, Rutan & Coolidge, Architects

College Y. M. C. A. and Religious Buildings

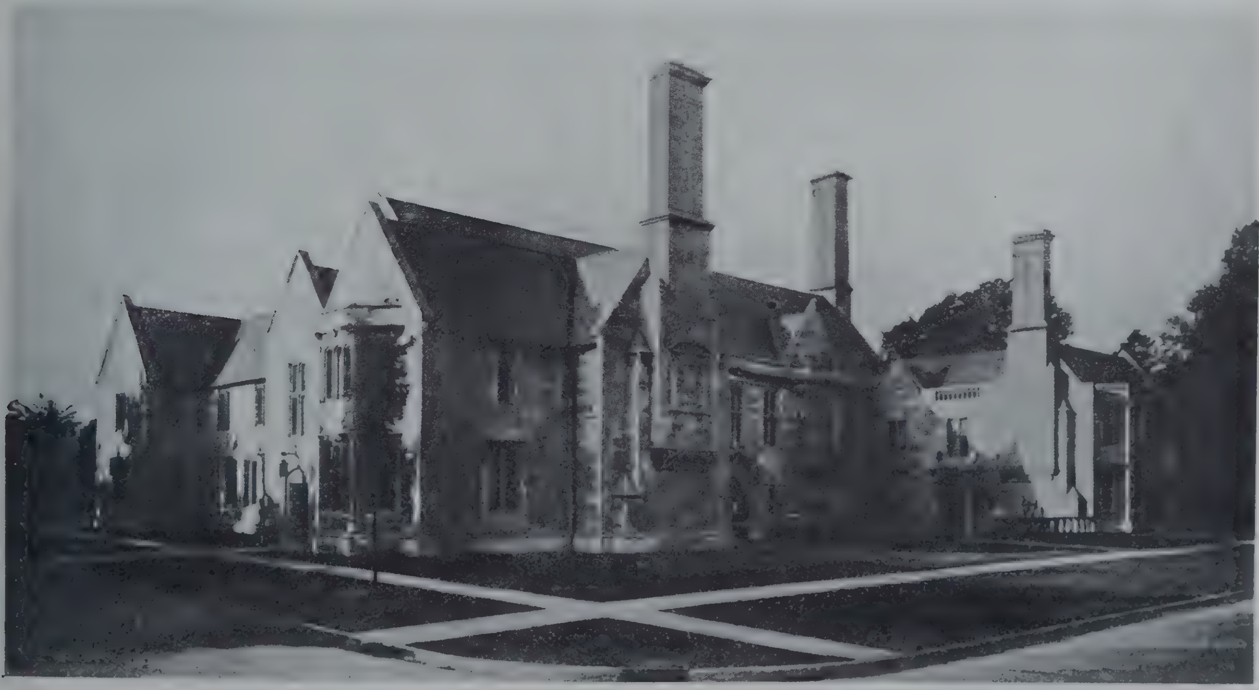
By REXFORD NEWCOMB

THE relationship between religion and education in the United States has been long and far-reaching. At one time in our history, educational institutions owed their origin and support almost entirely to the great religious bodies of our land, and our lads went to Presbyterian, Methodist, Congregational, Baptist or Catholic colleges, their choices depending pretty largely upon the faith of their parents. All of our older institutions of learning, with very few exceptions, grew out of educational movements in the Church, and indeed the guardianship of the Church over the College is still one of the salient factors in American education at large, just as, in fact, it always has been.

But with the growth of our commonwealths and the development of the public school system, the State as an educating agency came forward. In the beginning many of these state-supported institutions, as well as the church-owned schools, offered religious instruction under various guises and names, such as Mental and Moral Philosophy, but as time has gone on the general tendency has been to eliminate all religious teaching, and in some of our larger institutions to completely ignore giving such teaching as a university function. This was doubtless due, in part at any rate, to the same popular demand that ruled the reading of the Bible out of the public schools, on the ground that it was often read with sectarian bias and intent. Moreover, the institutions of this period were largely concerned with the development of professional instruction, especially in the sciences, engineering and agriculture, and with these material occupations it was considered, strange to say, that religion had little to do. During this perior there was a tendency to prescribe the *curricula,* leaving little in the way of elective subjects, with the result that the student mind became accustomed to having courses chosen for it, and since religious instruction was omitted, it made little attempt to demand such courses, or to obtain their equivalent in other ways.

The great religious agencies in the state-owned institutions of the latter half of the nineteenth century were the Young Men's and the Young Women's Christian Associations. That these were all-inclusive or as far-reaching in their influence as they should have been, no one would attempt to prove; yet they ministered to the moral and religious aspects of life in our educational institutions at a time when the public press was claiming that our colleges and universities were becoming "godless," and that higher education in our land was a failure. The Y. M. C. A. building of this period was an ample and often costly club house, containing large dormitory and study accommodations, committee rooms, lounging rooms, baths, billiard rooms, bowling alleys, and other amusement rooms, dining halls, etc. Many of these institutions maintained the appearance of great campus club houses up until the time of the World War.

When the war came, the Y. M. C. A. secretaries went in, and in common with other agencies operated both at home and abroad those serviceable little "hospices" popularly known as the "Y huts." The



Social Center, Wesley Foundation, University of Illinois, Urbana, Ill.

Holabird & Roche, Architects

Entrance Court, Social Center, Wesley Foundation, University of Illinois, Urbana, Ill.
Holabird & Roche, Architects

experience of the directors and secretaries of the Association during this period of changing values convinced the alert that the college Y. M. C. A., club-hotel of the pre-war period, was no longer an efficient or a desirable type of institution. Thus the "hut idea" came to the front to dominate Y. M. C. A. architecture. While many of the older local Associations still find themselves in possession of the old type of structures, the tendency among the college Y. M. C. A.'s is to dispose of the old properties and to erect buildings of the newer type. As compared with that of the older structures, the program for the newer is very much simplified and makes only these comparatively few and broad requirements:

(1) A social hall for general mixing and intercourse of students, who "drop in" for a few moments between classes or at other times.
(2) A great hall for large general social functions. This room serves much as a living room in the residence.
(3) A group of offices for the general secretary and his assistant secretaries.
(4) Several committee rooms, which are used for Association functions or loaned to other college agencies.
(5) The necessary toilets, washrooms and similar utilities.

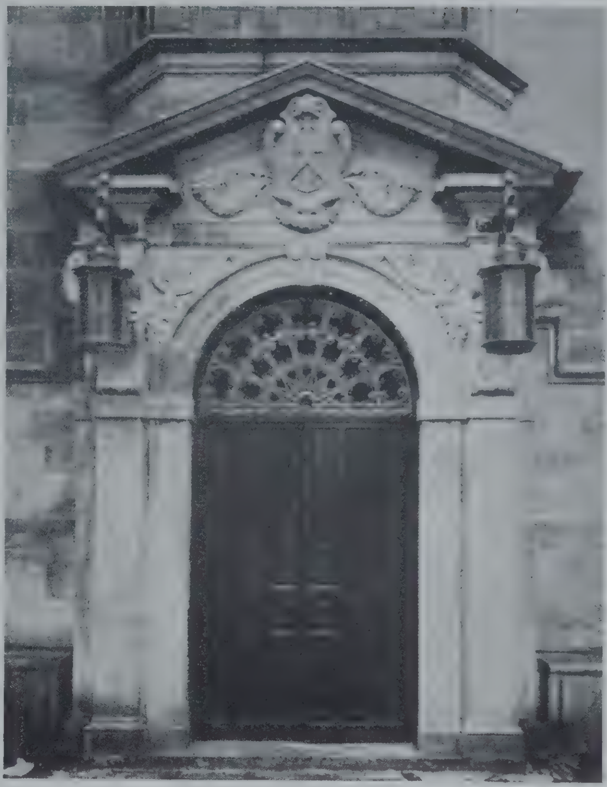
This simple program has found a very happy expression in the Young Men's Christian Association Building at the University of Minnesota, which was designed by Prof. Frederick M. Mann. This structure, in the estimation of the writer, represents the most satisfactory exemplification of this type thus

Entrance Court, Social Center, Wesley Foundation, University of Illinois, Urbana, Ill.
Holabird & Roche, Architects

far erected upon any American university campus.

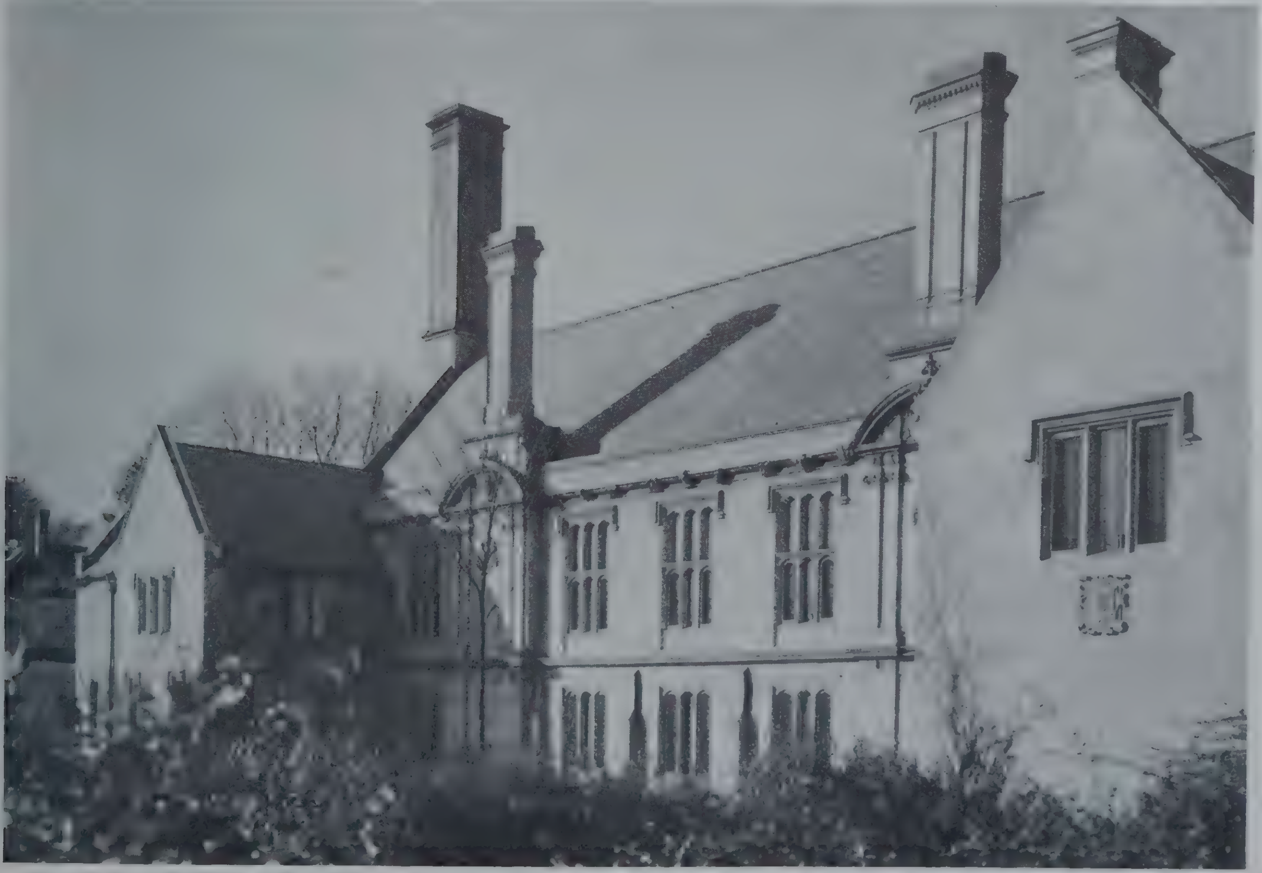
The place formerly taken by the Y. M. C. A. has, upon many a college campus, been given over to what is generally termed the "Student Union," which is really a great democratic campus club. It offers many of the services formerly supplied by the Association, a type of service, be it said, which should be delegated to the general student body rather than to a special agency such as is the Y. M. C. A. At many of our colleges large social clubs or "Union buildings" have already made their appearance, that at the University of Michigan, of which Pond & Pond are the architects, being perhaps the most elaborate thus far erected. Thus it would seem that the Y. M. C. A. is specializing its functions, and giving over such general activities as those named here to this new agency in campus life, as seems to be proper.

Another religious influence has in recent years made itself felt in the state-owned institutions. Originating first in a desire upon the part of the religious denominations to have chapels for the use of their adherents resident at the state universities, the movement has grown, with the result that in most of our state institutions there are now churches for the use of such students. Within rather recent years these churches have taken on added duties, attempting not only to supply religious influence in the life of the student but also to occupy a large place in the social life of the student body. Added to this there has



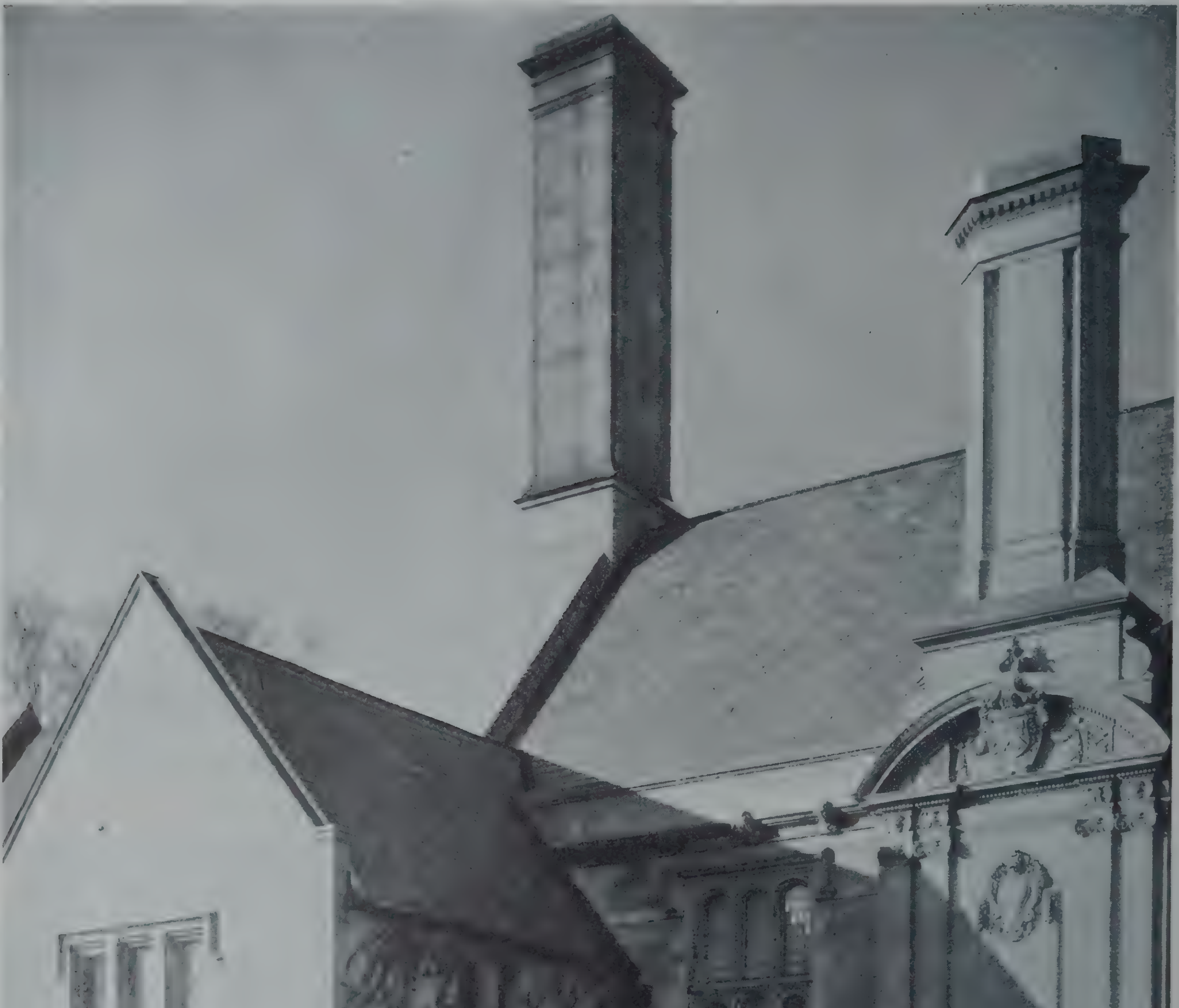
Detail, North Entrance, Social Center, Wesley Foundation, University of Illinois, Urbana, Ill.

Holabird & Roche, Architects



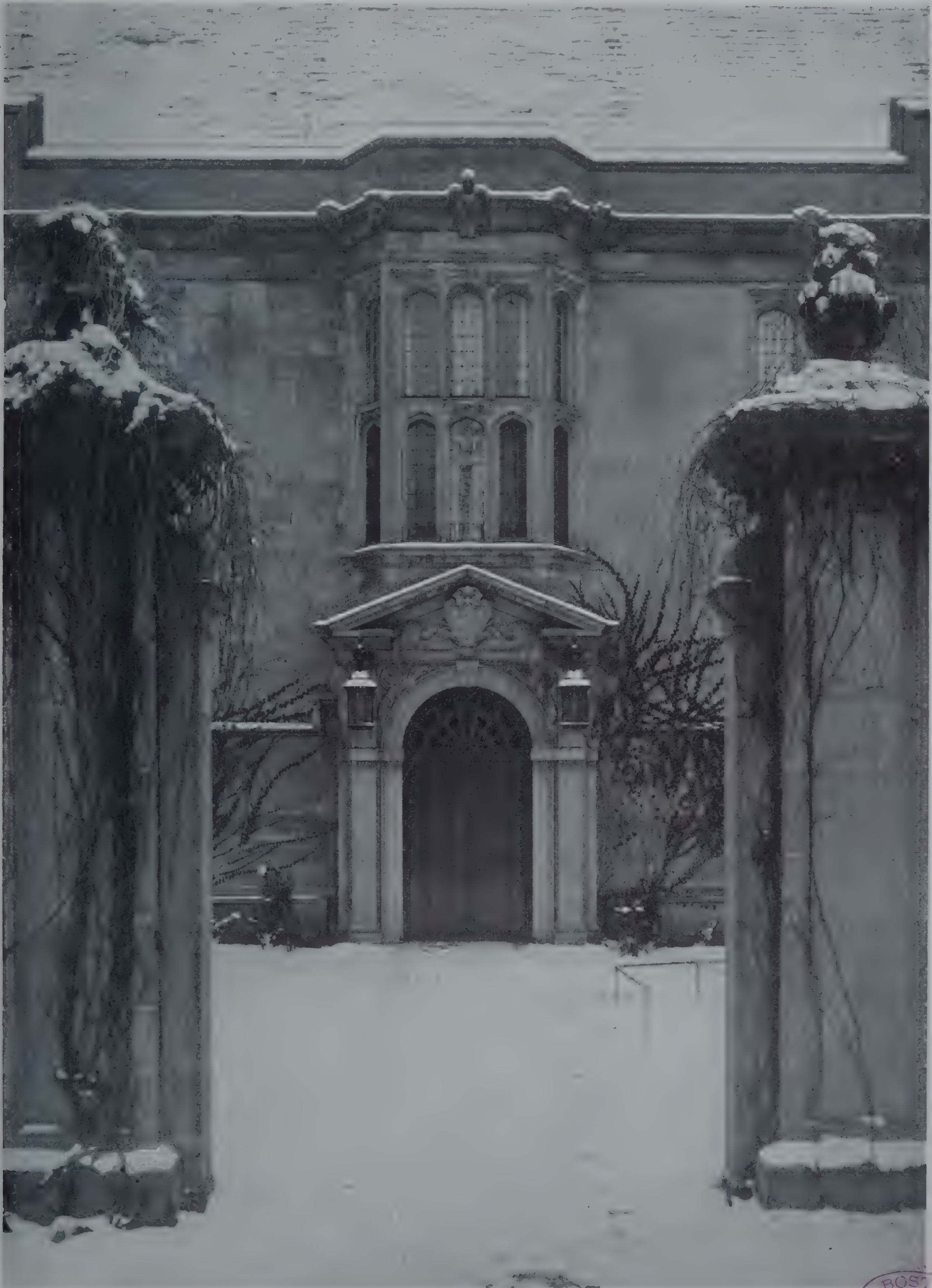
Garden Front, Wesley Foundation, University of Illinois, Urbana, Ill.

Holabird & Roche, Architects



Photos. Tebbs & Knell, Inc.

DETAIL, WESLEY FOUNDATION, UNIVERSITY OF ILLINOIS, URBANA, ILL.
HOLABIRD & ROCHE, ARCHITECTS



Photos. Tebbs & Knell, Inc.

NORTH ENTRANCE, SOCIAL CENTER, WESLEY FOUNDATION, UNIVERSITY OF ILLINOIS, URBANA, ILL.

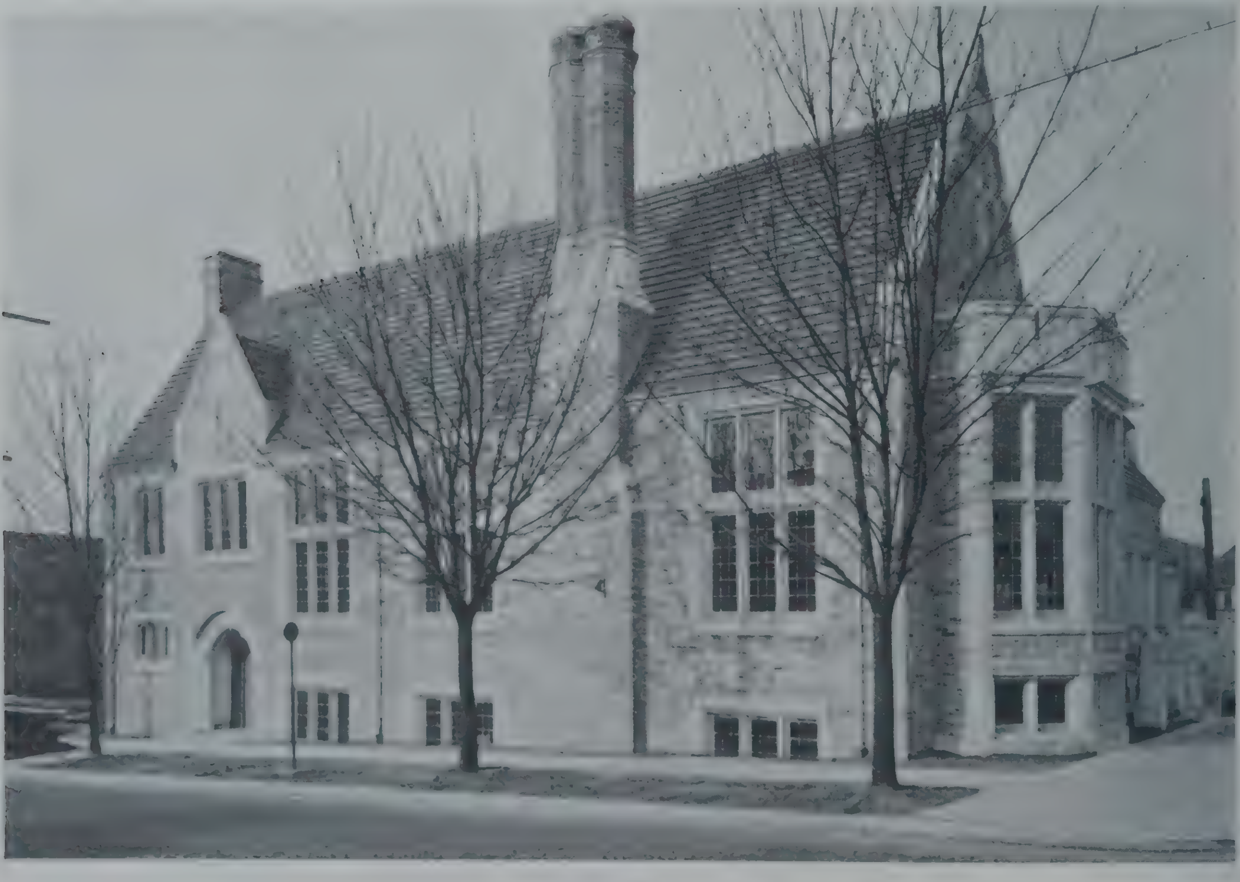
HOLABIRD & ROCHE, ARCHITECTS

BOST PUBL

been a demand on the part of many for something in the way of religious instruction other than that afforded by the Sunday Schools conducted by college churches. This movement for some years found expression in the little study groups conducted in various churches by the college pastors or by interested professors. The facilities for carrying on such functions, especially in the larger institutions, were meager in relation to the work at hand, and so taxed the local college churches that recently a movement was instituted to enlist the attention of the general church bodies in this work. This movement in the Methodist Church resulted in the establishment of what are known as the "Wesley Foundations," and organizations bearing this name have been incorporated in several states and have established instruction-giving institutions at several state universities. The work is supported by the church at large and by the state church organizations, the division of labor and support being by states. This development on the part of the Methodist body has been paralleled by that of other denominations, with the result that such an institution as the University of Illinois finds clustered about its campus these religious organizations: "Wesley Foundation" (Methodist); "Illinois Disciples Foundation" (Church of Christ, Disciple); "Pilgrim Foundation" (Congregational); "Hillel Foundation" (Hebrew); "McKinley Memorial Foundation" (Presbyterian); "Columbus Foundation" (Catholic).

Most of these institutions are still seeking their architectural expression, and as yet one only, the "Wesley Foundation," has begun the group of buildings that it proposes eventually to erect at the University. Having secured, adjacent to the campus in Urbana, a city square, the Foundation began its architectural realization by the erection of the "Social Centre Building." This structure, designed by Holabird & Roche, will doubtless wield a large influence.

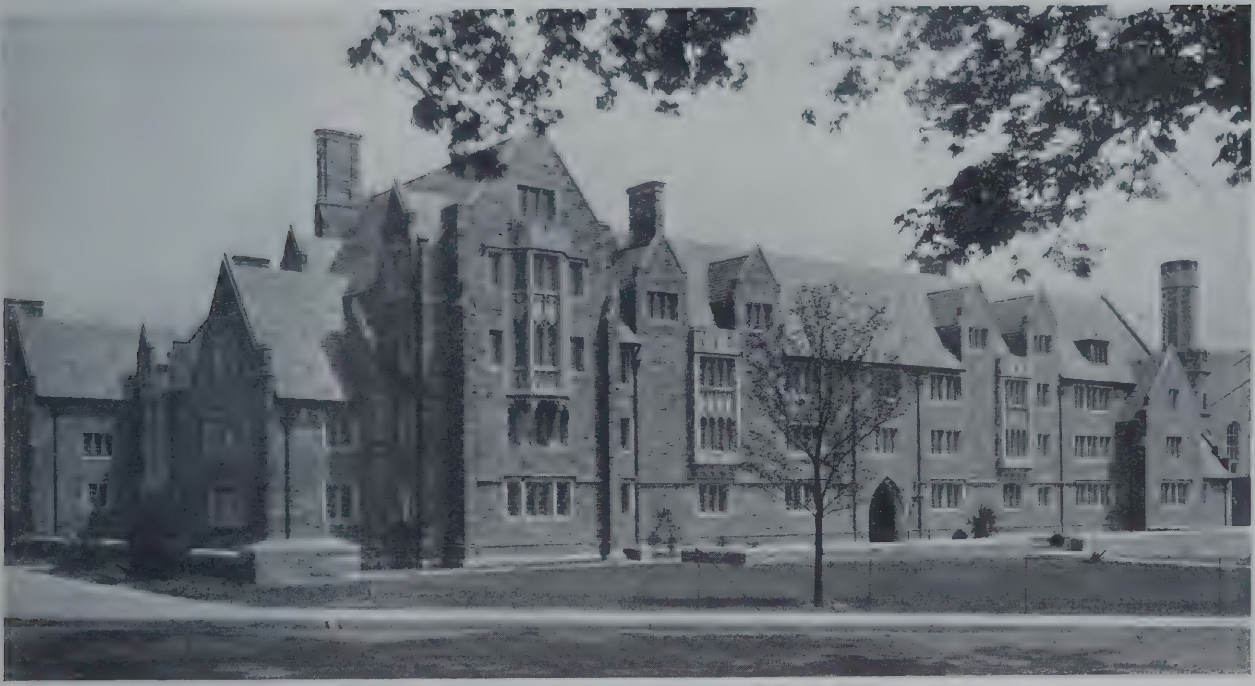
At other mid-western colleges plans are going forward for the erection of similar "Wesley" groups, and in many of our states endowments and building funds are now being raised to finance the erection and support of similar institutions by other churches. To the architectural profession the development of the expression of this new type of structure, with its interesting symbolism and practical demands, will be most interesting. These "institutional plants" will constitute the collegiate churches or chapels of the future. As will be readily seen, buildings of this type make special demands, since a structure such as has been built by the Wesley Foundation at Urbana fulfills many of the functions of a fraternity house, some functions which one thinks of as belonging to the Y. M. C. A., and other functions which are peculiarly its own. A building of this character is of course likely to be placed in an important location in a college or university town, and it is almost certain to be designed upon a scale which renders it impressive.



Y. M. C. A., University of Washington, Seattle, Wash.
Bebb & Gould, Architects

Dormitory Designs by Day & Klauder

By MATLACK PRICE

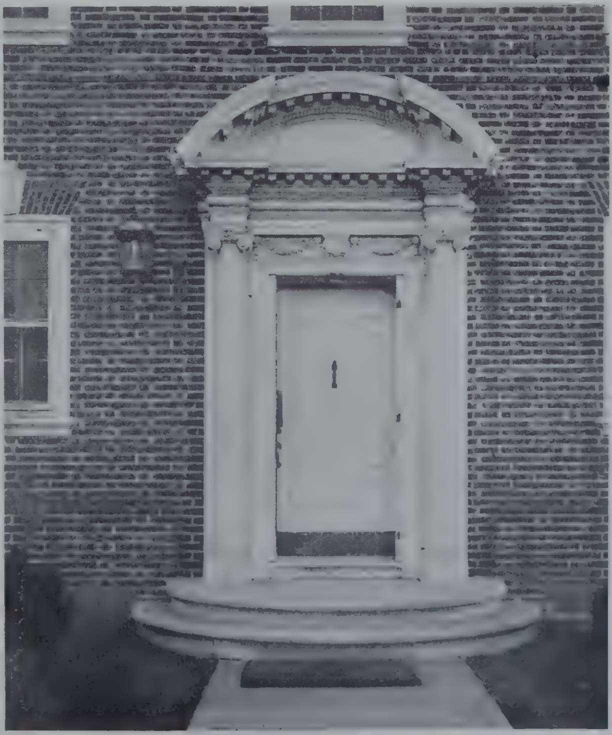


Pyne Hall, Princeton University

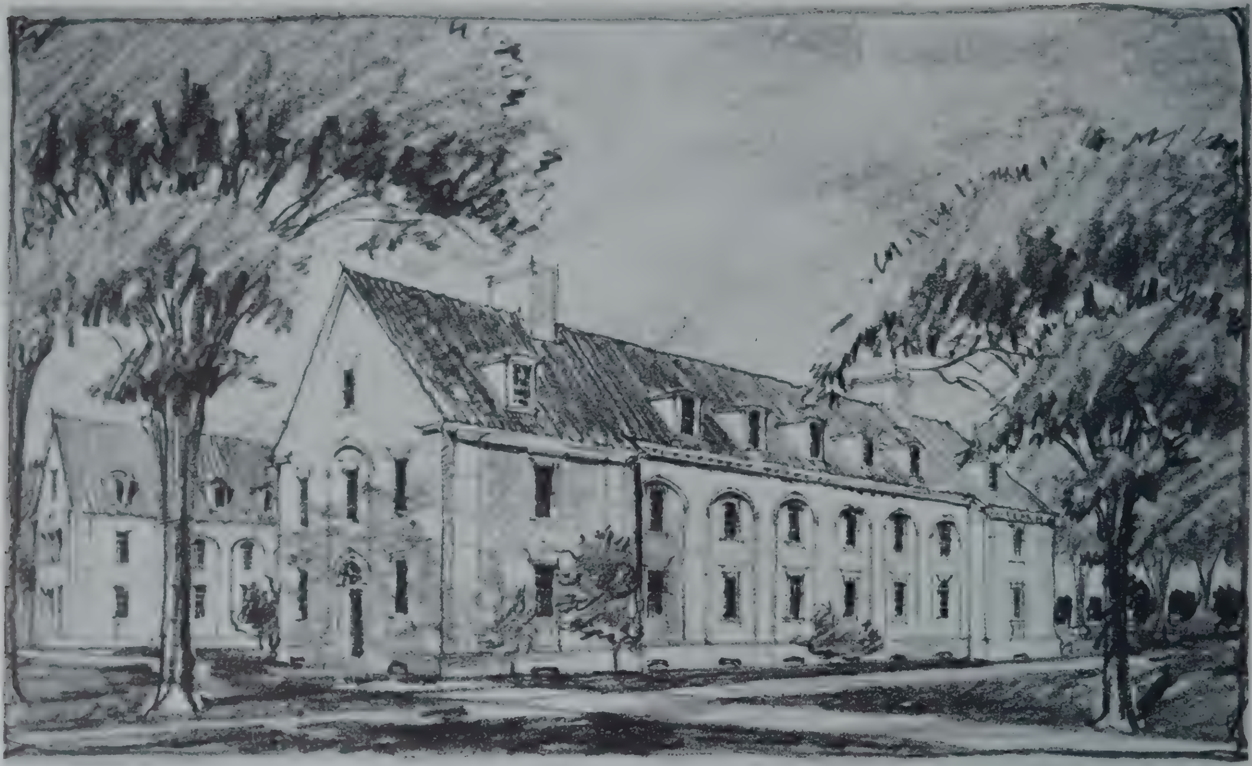
THE problem here, as in all modern architectural practice, is highly specialized, involving far more than meets the eye. The visitor at our universities and colleges quite naturally sees the buildings in terms of picturesque suggestion. Their measure is the degree to which they create illusions of the charm and historic association of, for instance, the old buildings of Oxford and Cambridge in England. There are traditions in scholastic architecture, and though these are essential and often exacting, their maintenance is the least difficult part of the architect's task, as certainly it is the most pleasant. To build towers and broad Gothic portals, to diversify facades with mullioned oriel windows and leaded casements, is to design with some of the most picturesque elements that characterize any style of architecture.

In saying that this is the least difficult part of the designing of college dormitories I do not mean that it is easy, or that it does not call for a great deal of sympathy and a thoroughly assimilated knowledge of precedents, as well as for the highest order of architectural technique in execution. In the best renderings of the scholastic type of Gothic architecture there are the qualities that James Gamble Rogers achieved in the Harkness Memorial Quadrangle at Yale, the spirit of Goodhue's Gothic, the erudition of Cram's, and the consistently fine work of the office of Day & Klauder.

It is perfectly understandable that a college, when confronted with the question of choosing a style, leans toward use of the old scholastic Gothic of Oxford and Cambridge, and seeks, as at Princeton, to build preponderantly in that style. Many of our universities and colleges, notably Yale and Harvard, have been unfortunate in securing the architectural miscellany that results from putting up buildings at different times, in the mode of the moment, especially when this prac-



Entrance Detail, Sussex Hall (Women's Dormitory)
University of Delaware

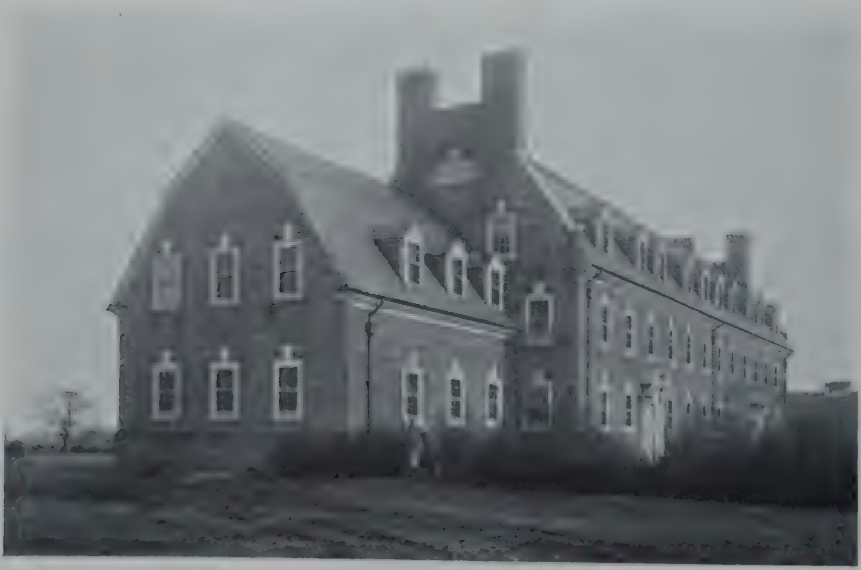


Franklin and Marshall College Dormitories
Day & Klauder, Architects

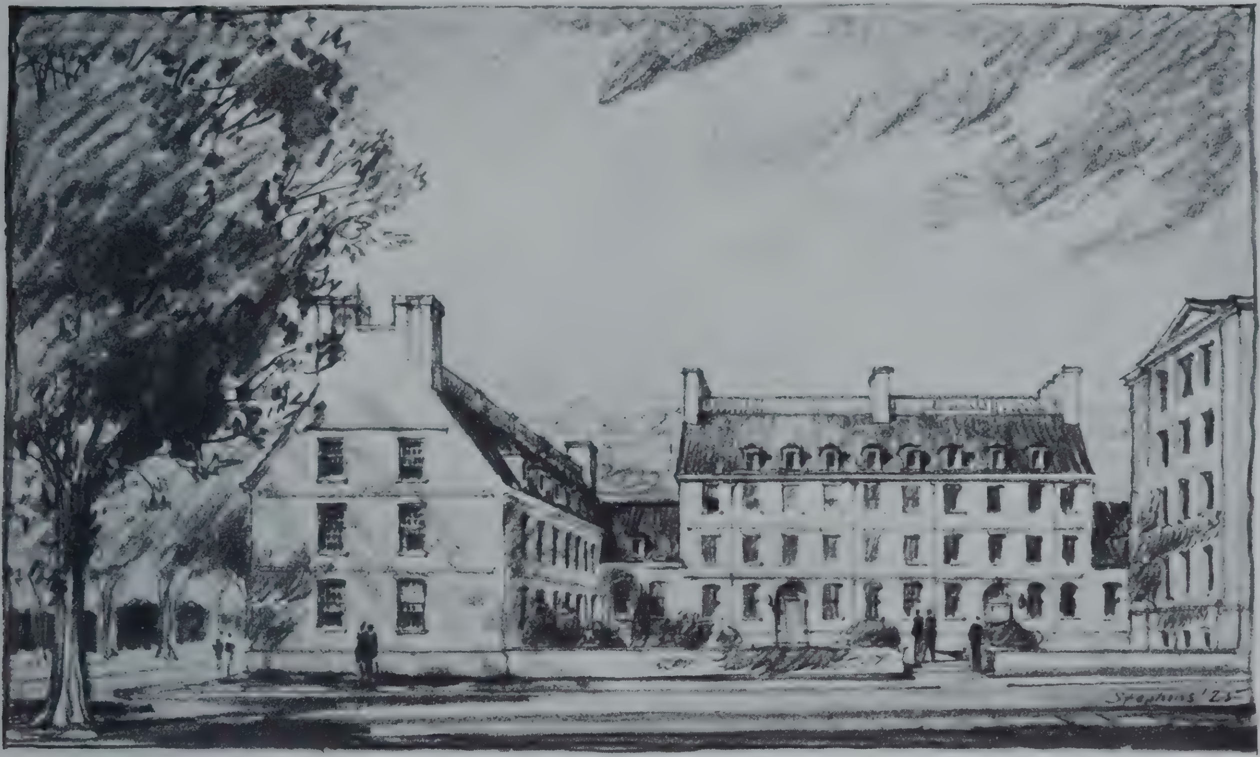
tice saddled them with the architecturally atrocious buildings of the 'eighties. For we could have had consistently designed and beautifully designed college groups even if Oxford and Cambridge had not been in the picture at all; we could have followed as models the first old brick buildings of Harvard or, for more southern localities, the somewhat later classicism of Jefferson's University of Virginia. This is precisely what Day & Klauder have done in several instances. Their Littlefield Dormitory at Brown, in Providence, might have been taken from an old print; it has an absolutely authentic flavor of antiquity, and it is "New England" to the core. And the same is true of the John Rogers Hegeman dormitory group at Brown. There is more than mere architectural design in these buildings; there is an authentic quality, a sense of the spirit of the founders of the University which is unusually successful.

Going farther south for the Georgian type, it has been revived in Dietz Hall and Santee Hall at Franklin and Marshall College (Lancaster, Pa.), in Sussex Hall at the University of Delaware, and in Frederick Watts Hall at the Pennsylvania State College Day & Klauder have made admirable use of the Delaware and Maryland type of brick architecture. It is a style that lends itself admirably to the design of college buildings, whether single or in groups, and its inherent quality of domesticity makes it particularly an excellent style for dormitories or residence buildings. Its use is almost always successful.

There are not a few critics who argue, from really unassailable premises, that these Georgian Colonial types are more to be desired than adaptations of the English scholastic Gothic type, on the ground that they represent a native



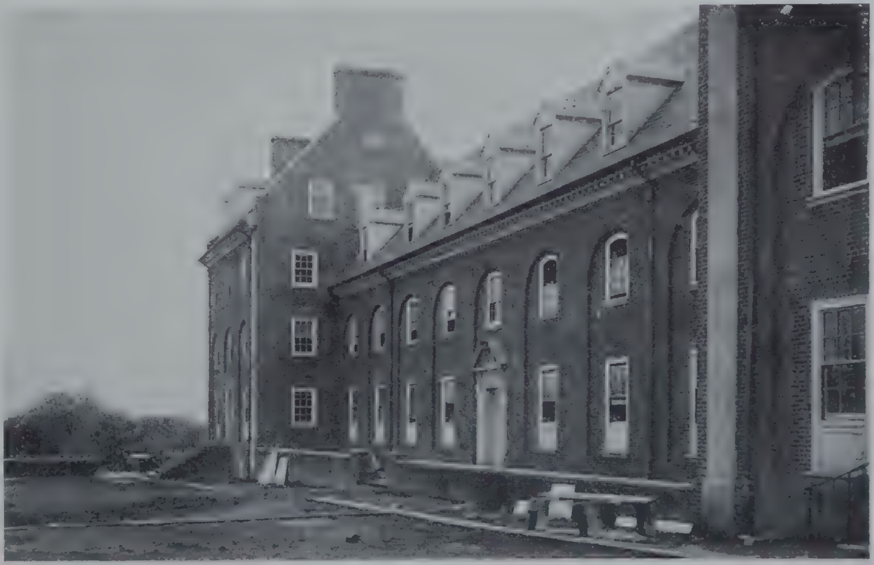
Sussex Hall (Women's Dormitory), University of Delaware
Day & Klauder, Architects



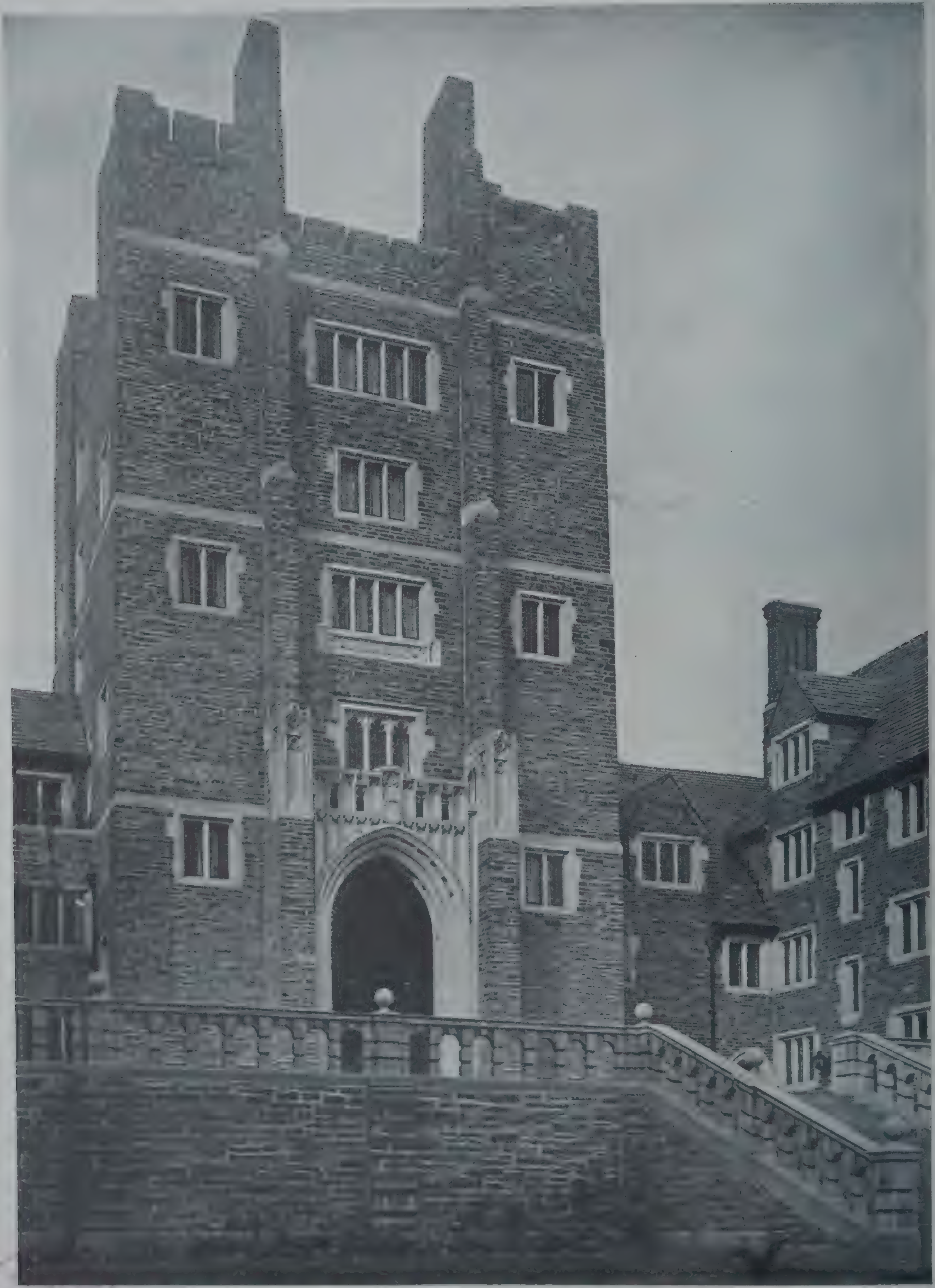
John Rogers Hegeman Dormitory, Brown University, Providence
Day & Klauder, Architects

style. Personally, I can think of no refutation of this that would not degenerate into a highly specious argument; and yet, at the same time, I should be very sorry to think that there were no place in this country for the scholastic Gothic. It is as admissible, certainly, through historic association, as the use of Gothic for the design of churches in this country, and if its qualities of old, quiet charm can give to our students any of the cloistered spirit of old-world scholarliness, or store up in their memories any impressions of their college days comparable with the memories that Englishmen have of Oxford and of Cambridge, all empirical arguments against them may well be dismissed at once.

In the scholastic Gothic manner of England, which was really a Tudor Gothic manner, transitional to the Renaissance, Day & Klauder have done exceedingly well. In Pyne Hall at Princeton there is pleasant diversity in a facade which is essentially simple. The gables have been managed with fine effectiveness, the stone masonry is of the best, and mullioned windows create the essential picturesque interest. Buildings of this kind are at their best in group design, preferably about a quadrangle, or flanking two sides of a quadrangle. The long plan is always adaptable, and the more there is achieved an effect of random, rambling informality the more in character the structures are with the buildings that are their prototypes. The plan of the 1901 Hall at Princeton (p. 327) is ideal in this respect, for it has not only two cross-wings at right angles with the main building but a long splayed wing running off from one end. The architects expressed a fine quality of vigor in the Baker Tower at Cornell,—a great



Frederick Watts Hall, Pennsylvania State College
Day & Klauder, Architects



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DETAIL, BAKER TOWER

CORNELL UNIVERSITY, ITHACA

DAY & KLAUDER, ARCHITECTS

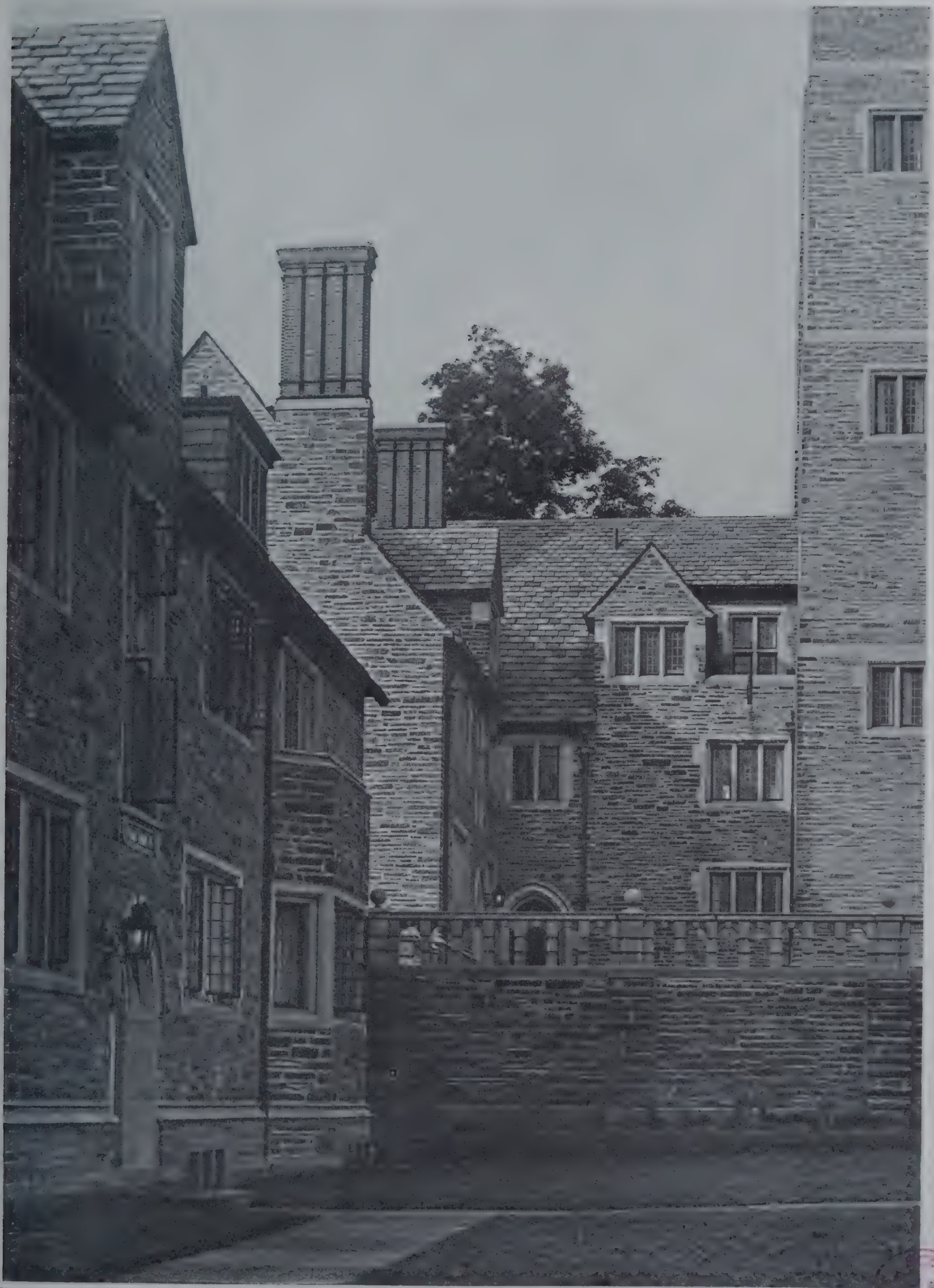


Photo. Roger B. Whitman

COURT WITH BAKER TOWER AT RIGHT; NORTH BAKER DORMITORY AT LEFT
CORNELL UNIVERSITY, ITHACA
DAY & KLAUDER, ARCHITECTS

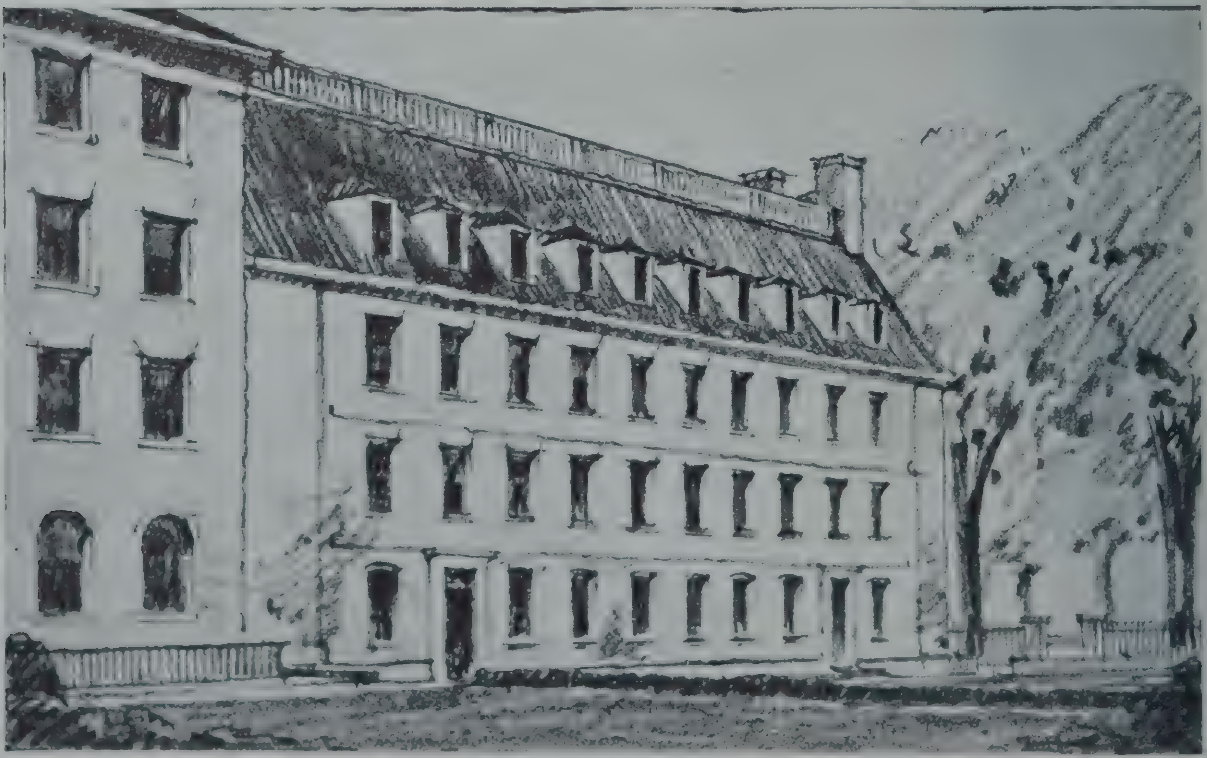
Harter Hall, University of Delaware
Day & Klauder, Architects

square mass with buttresses mounting its full height. The scale and character of the stone masonry can stand as exemplifying the technique that should be used with this style; it could not be better done. In conjunction with the Baker group, the Renaissance railing on the terrace, so definitely remindful of Haddon Hall, is an interesting bit of design, and not unlike, somehow, the handiwork of Lutyens, of strong, vigorous character.

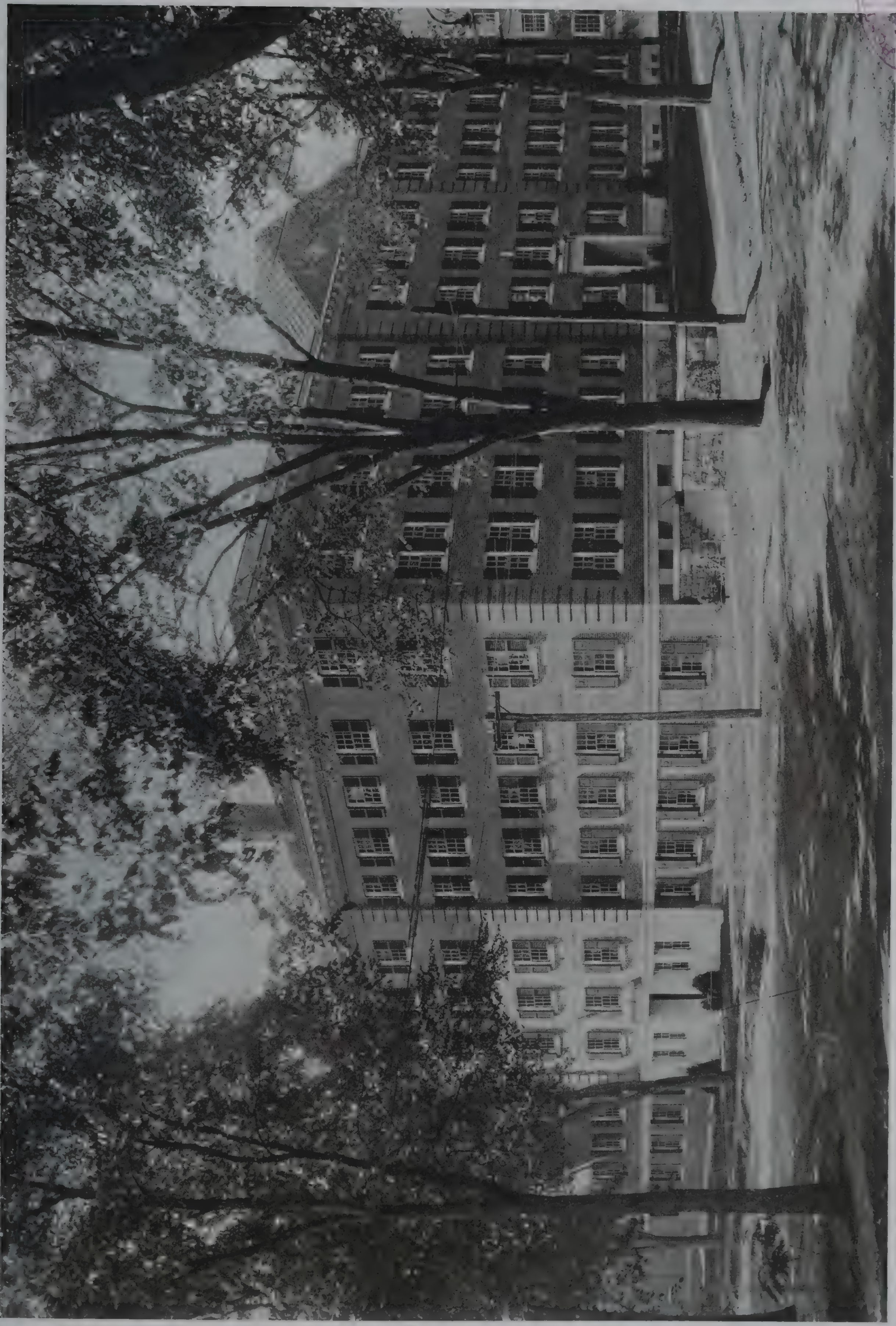
The element of specialization in the design of college dormitories lies in the plan, which calls for a full measure of study and ingenuity to provide for a maximum number of students, comfortably quartered, at a reasonable cost per student. The "cost per student" basis is customary in estimating the cost of college dormitory buildings, and it will be seen at once that in any given building the cost per student will depend upon whether a dormitory is made up wholly of bedrooms, or whether a certain proportion of the rooms are in suites for two students with a study, or for one student with a study. Space occupied by large hallways, "commons" or committee rooms naturally tends to increase the cost per student, and in comparing figures on some of the dormitories illustrated here it seems that approximately $1,500 per student is the lowest, approximately $3,500 is the highest, and that figures between $2,000 and $2,500 are the average allowance. This "cost per student" is figured on a basis of the total cost of the building, and should prove a valuable check figure for all architects who are planning college or university dormitories.

There is no standardization in the proportion of single rooms to rooms with studies, as this varies with the requirements of each case. Other variables make it still more difficult to develop anything like a formula. But Day & Klauder have developed something far better than a formula; they have developed a variety of eminently fine college buildings for America, and have proved that the stylistically suitable college dormitory is as thoroughly suited to its location as its planning and equipment are practical.

For buildings of the college dormitory type there are not infrequently fixed cost limitations within which the architect must work, and certain factors, obviously, will reduce the cost per student,—factors of material and type of construction and factors of plan. Generally speaking, the solution is best found in the plan of maximum economy in which a greater number of students provided for will reduce the cost.

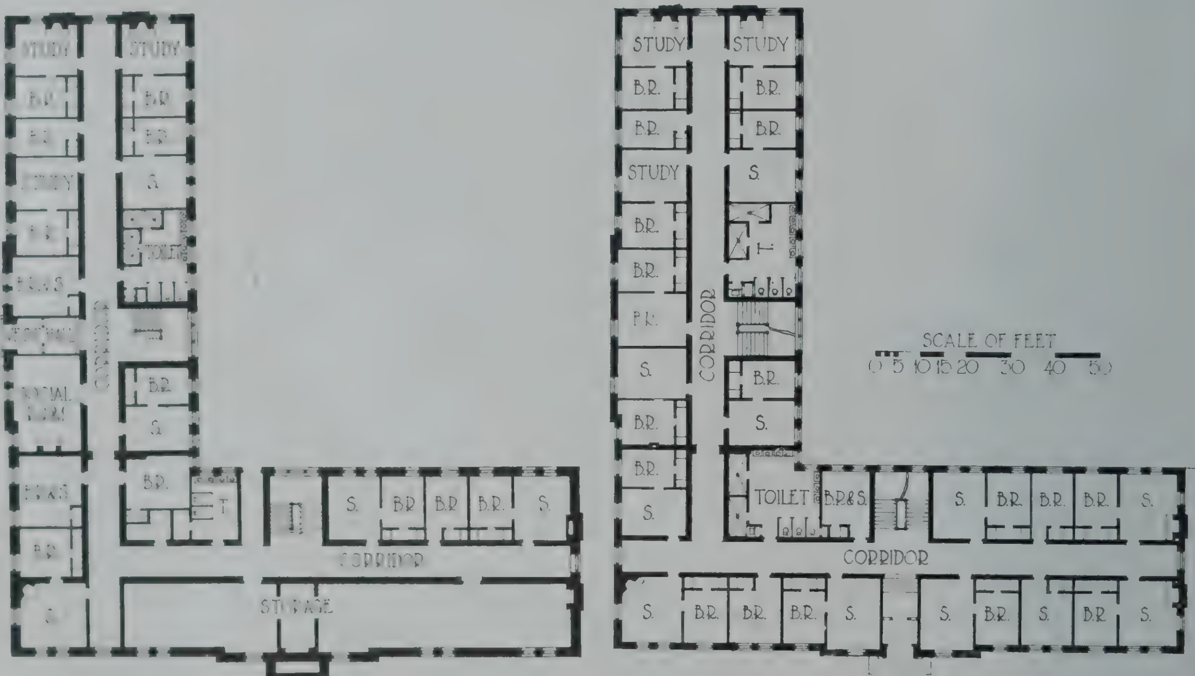


From a Pencil Rendering of Littlefield Dormitory, Brown University, Providence
Day & Klauder, Architects



Plans on Back

TOPLIFF HALL
DARTMOUTH COLLEGE, HANOVER, N. H.
LARSON & WELLS, ARCHITECTS

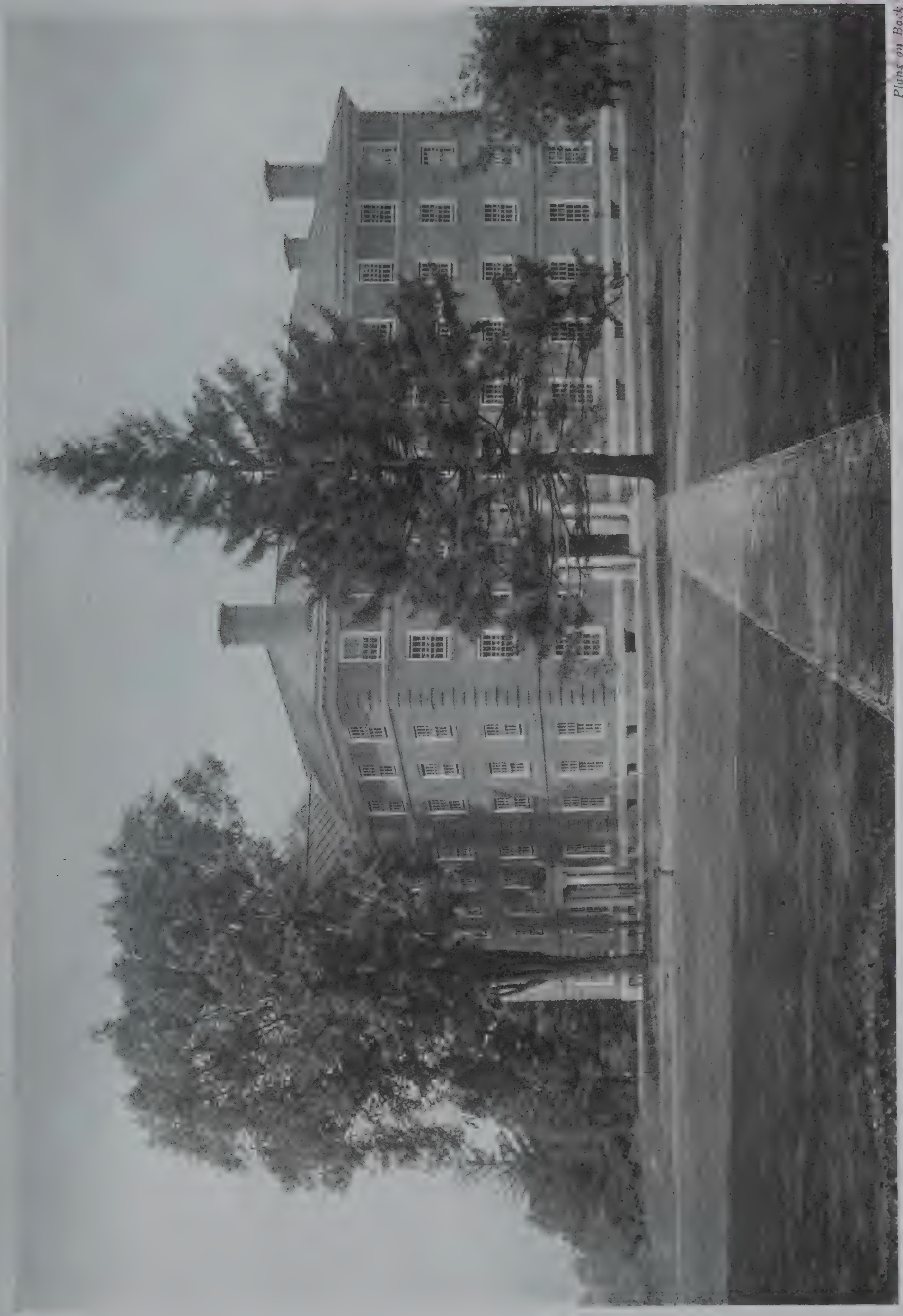


BASEMENT

FIRST FLOOR

PLANS, TOPLIFF HALL, DARTMOUTH COLLEGE, HANOVER, N. H.

LARSON & WELLS, ARCHITECTS

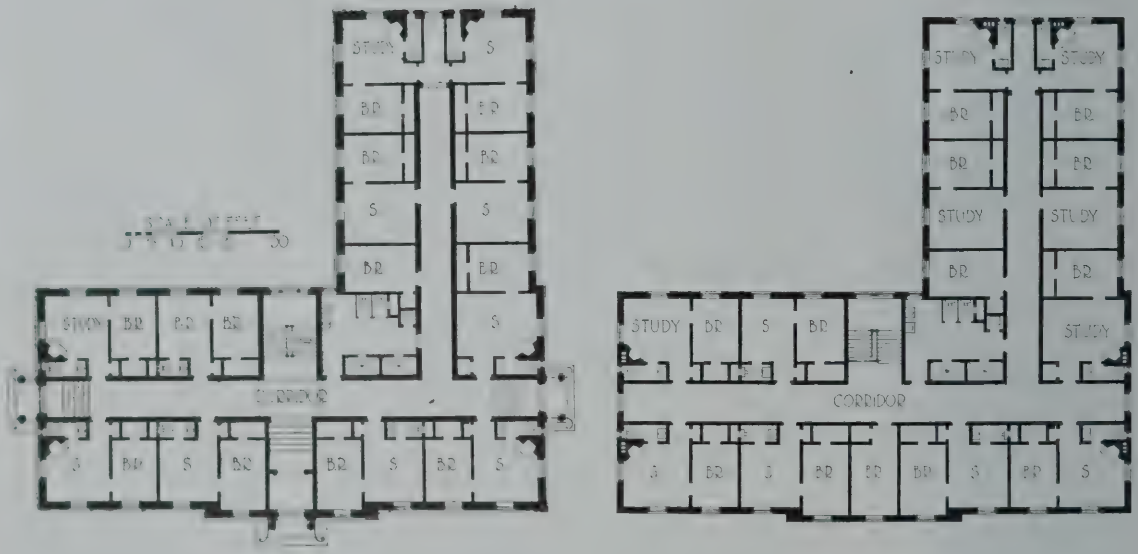


Plans on Back

RUSSELL SAGE HALL

DARTMOUTH COLLEGE, HANOVER, N. H.

LARSON & WELLS, AND OFFICE OF JOHN RUSSELL POPE, ARCHITECTS

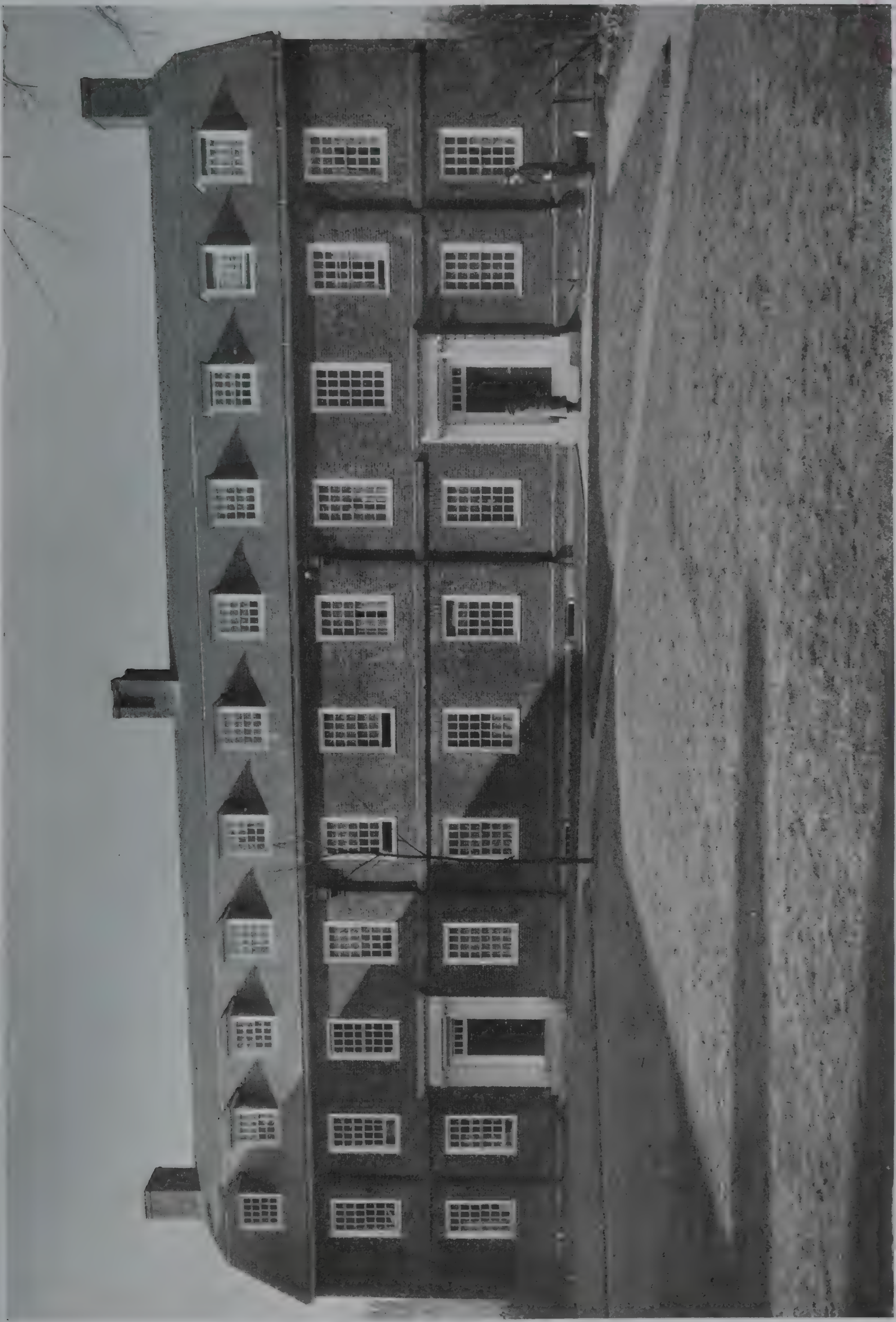


FIRST FLOOR

SECOND FLOOR

PLANS, RUSSELL SAGE HALL, DARTMOUTH COLLEGE, HANOVER, N. H.

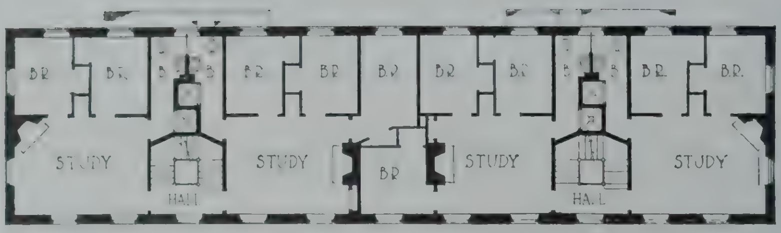
LARSON & WELLS AND OFFICE OF JOHN RUSSELL POPE, ARCHITECTS



Plans on Back

Photo. Paul J. Weber

LIONEL HALL
HARVARD UNIVERSITY, CAMBRIDGE, MASS.
COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS



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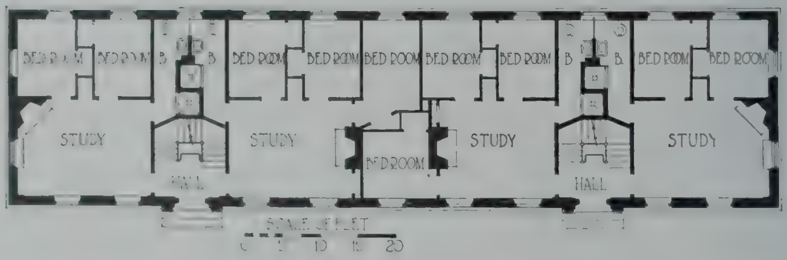


FIRST FLOOR

PLANS, LIONEL HALL, HARVARD UNIVERSITY, CAMBRIDGE, MASS.

COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS

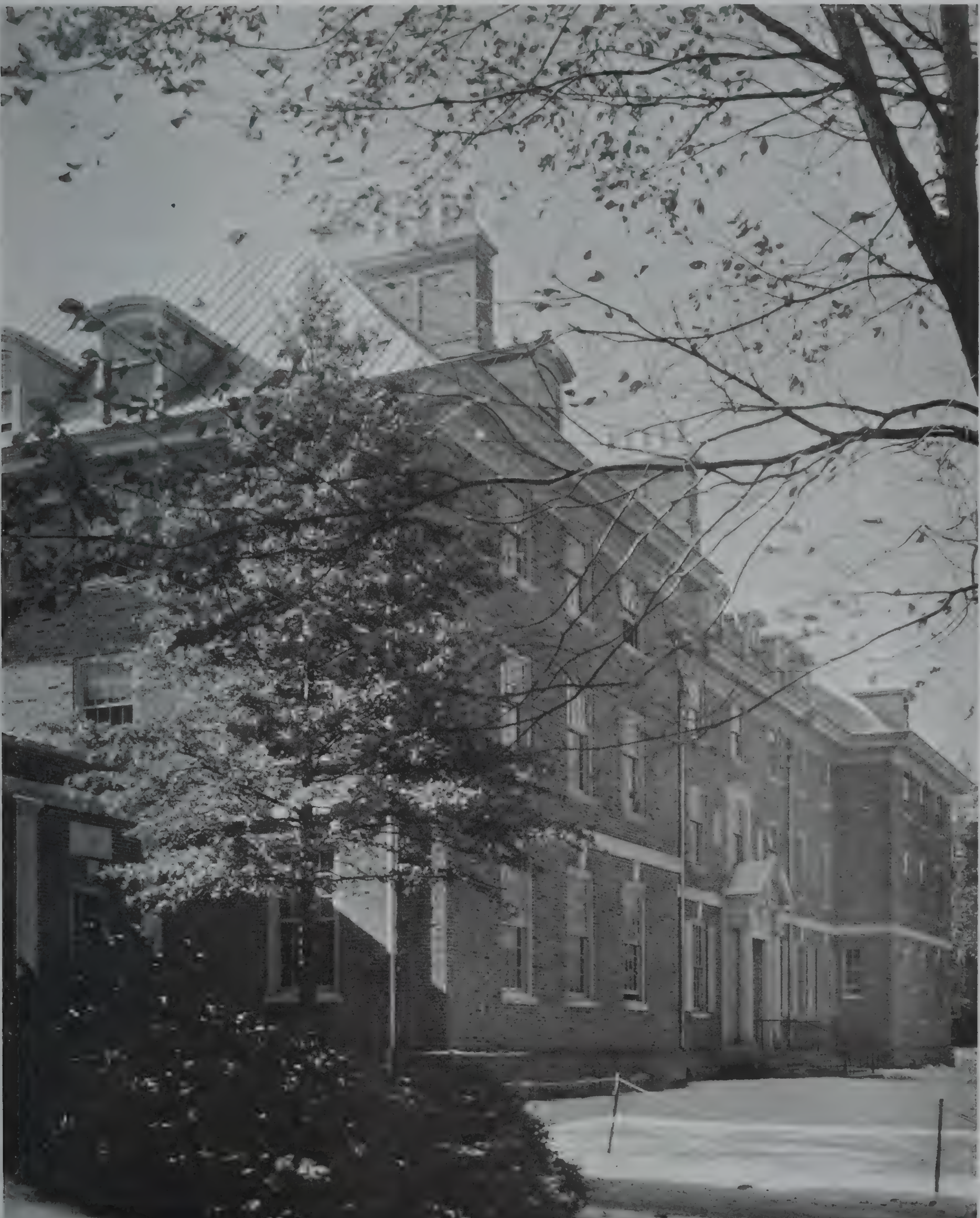
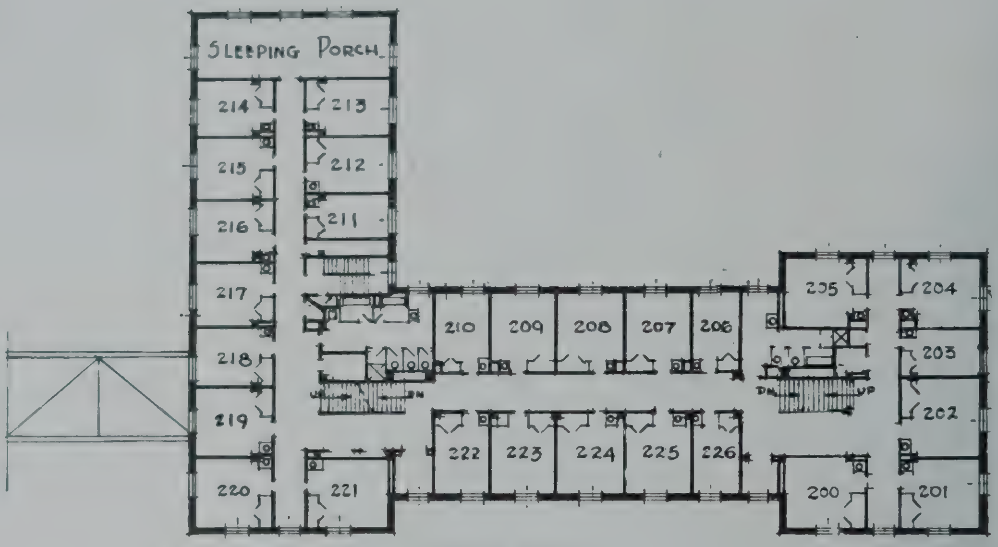


Photo. Tebbs & Knell, Inc.

Plans on Back

WEST RESIDENCE HALL
UNIVERSITY OF ILLINOIS, URBANA, ILL.
JAMES M. WHITE AND CHARLES A. PLATT, ASSOCIATED ARCHITECTS



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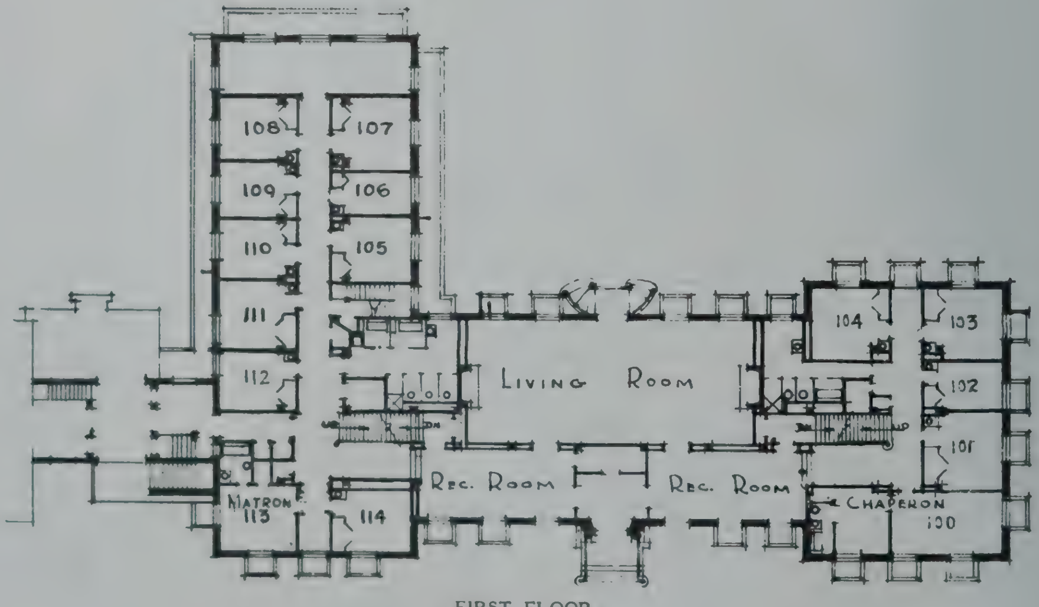


FIRST FLOOR

PLANS, WEST RESIDENCE HALL, UNIVERSITY OF ILLINOIS, URBANA, ILL.

JAMES M. WHITE AND CHARLES A. PLATT, ASSOCIATE ARCHITECTS

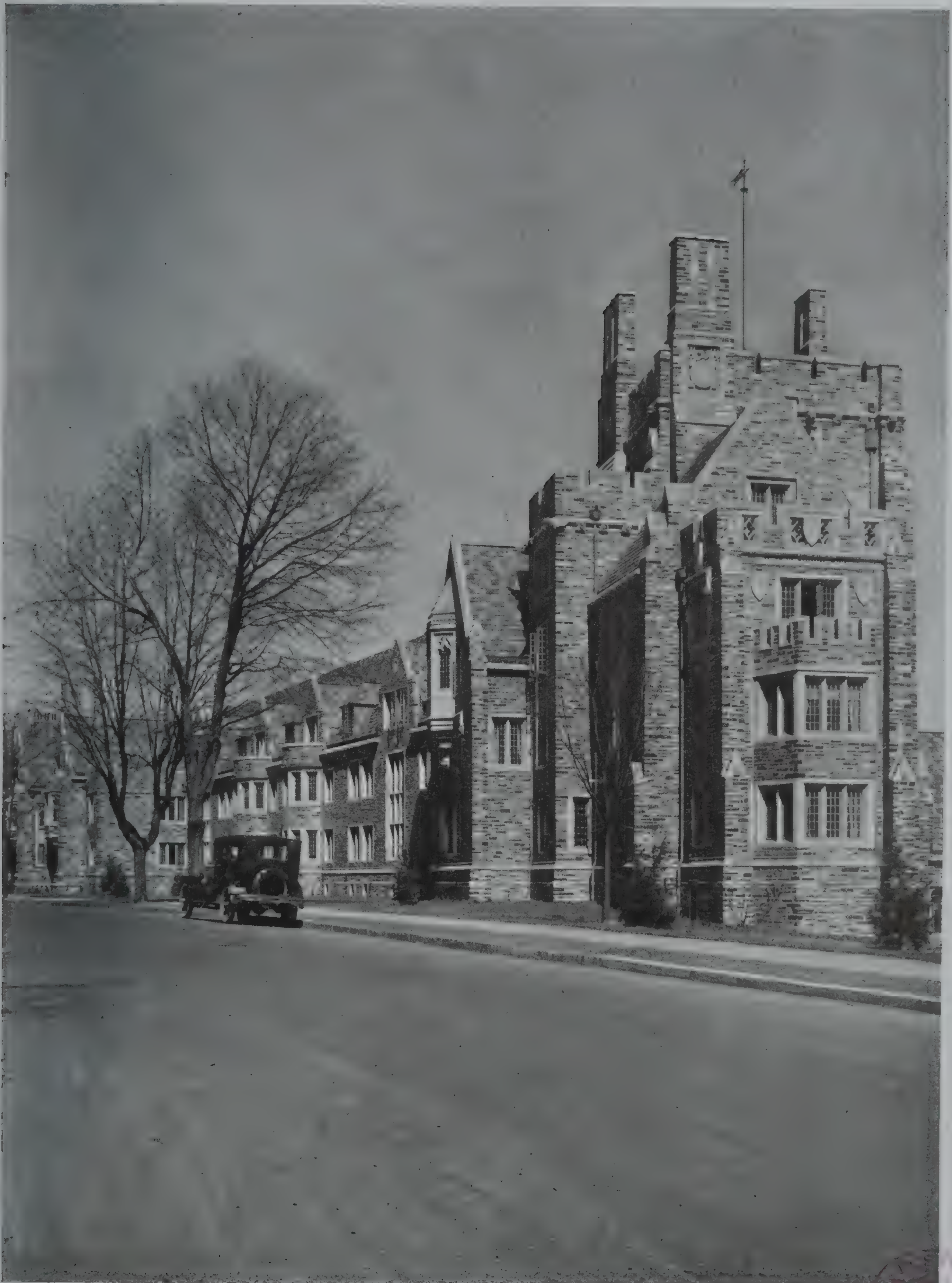
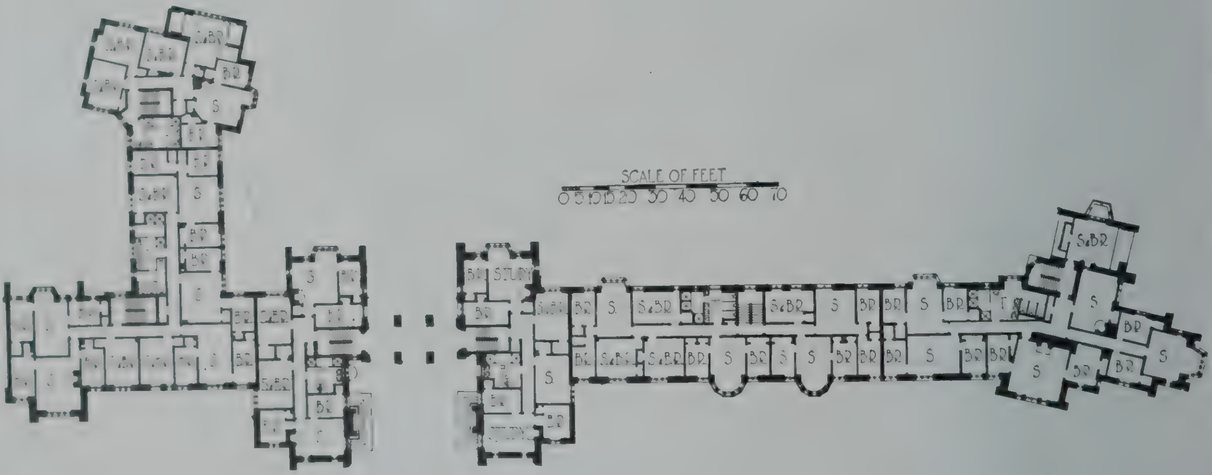


Photo. John Wallace Gillies

Plans on Back

GROUP OF DORMITORIES
PRINCETON UNIVERSITY, PRINCETON, N. J.
ZANTZINGER, BORIE & MEDARY, ARCHITECTS



FIRST FLOOR

PLANS, FOULKE AND HENRY DORMITORIES, PRINCETON UNIVERSITY, PRINCETON, N. J.

ZANTZINGER, BORIE & MEDARY, ARCHITECTS

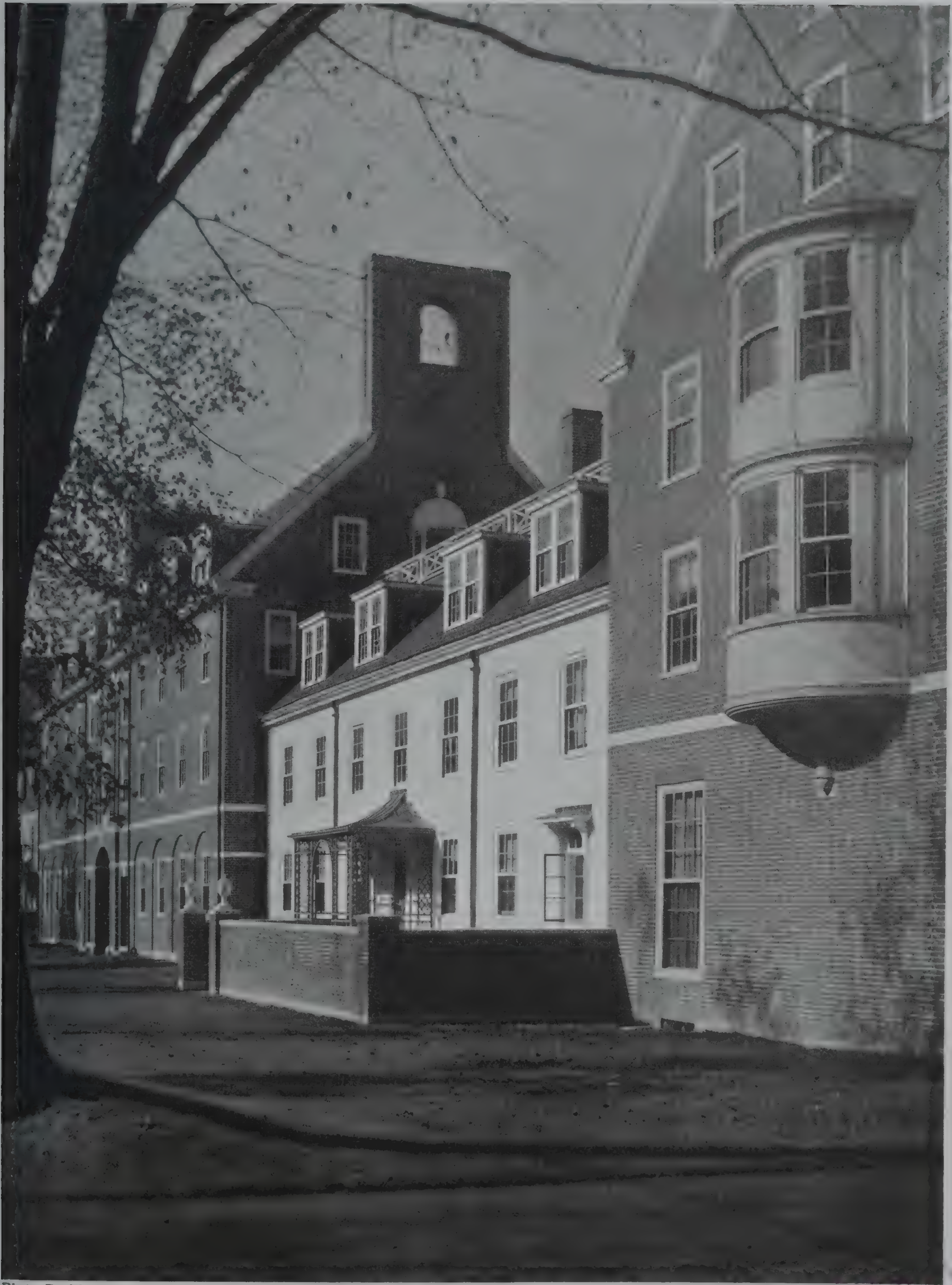
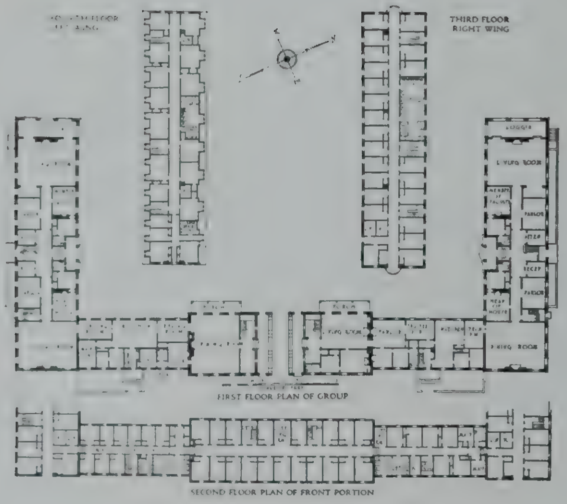


Photo. Paul J. Weber

Plans on Back

PUBLIC LIBRARY

DORMITORIES, SMITH COLLEGE, NORTHAMPTON, MASS.
J. W. AMES, K. S. PUTNAM AND E. S. DODGE, ARCHITECTS



PLANS, DORMITORIES, SMITH COLLEGE, NORTHAMPTON, MASS.

J. W. AMES, K. S. PUTNAM & E. S. DODGE, ARCHITECTS

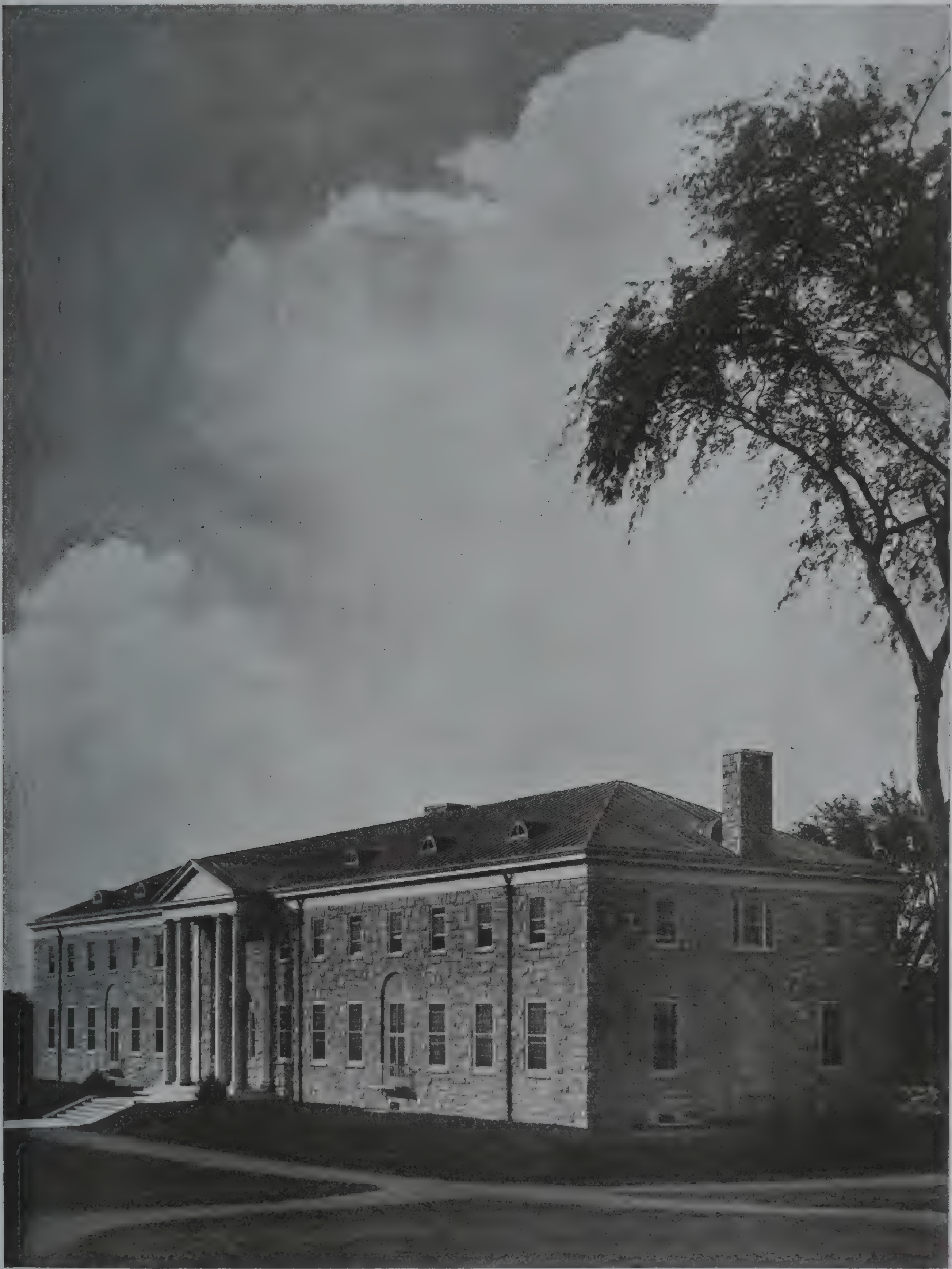
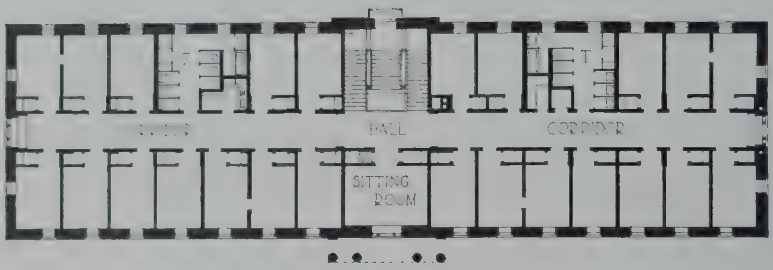


Photo. Sigurd Fischer

Plans on Back

COLONIAL HOUSE, CONNECTICUT COLLEGE FOR WOMEN, NEW LONDON, CONN.
HERBERT R. LOUD, ARCHITECT



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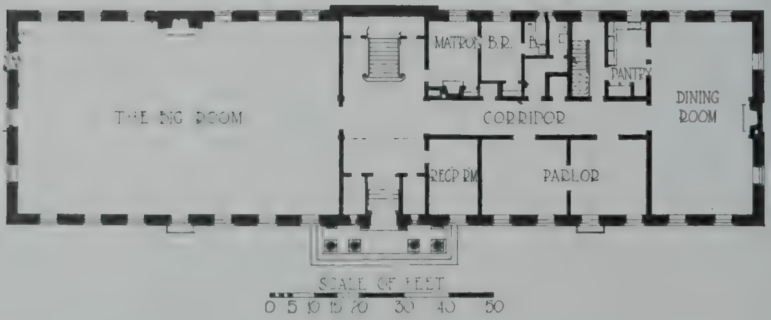
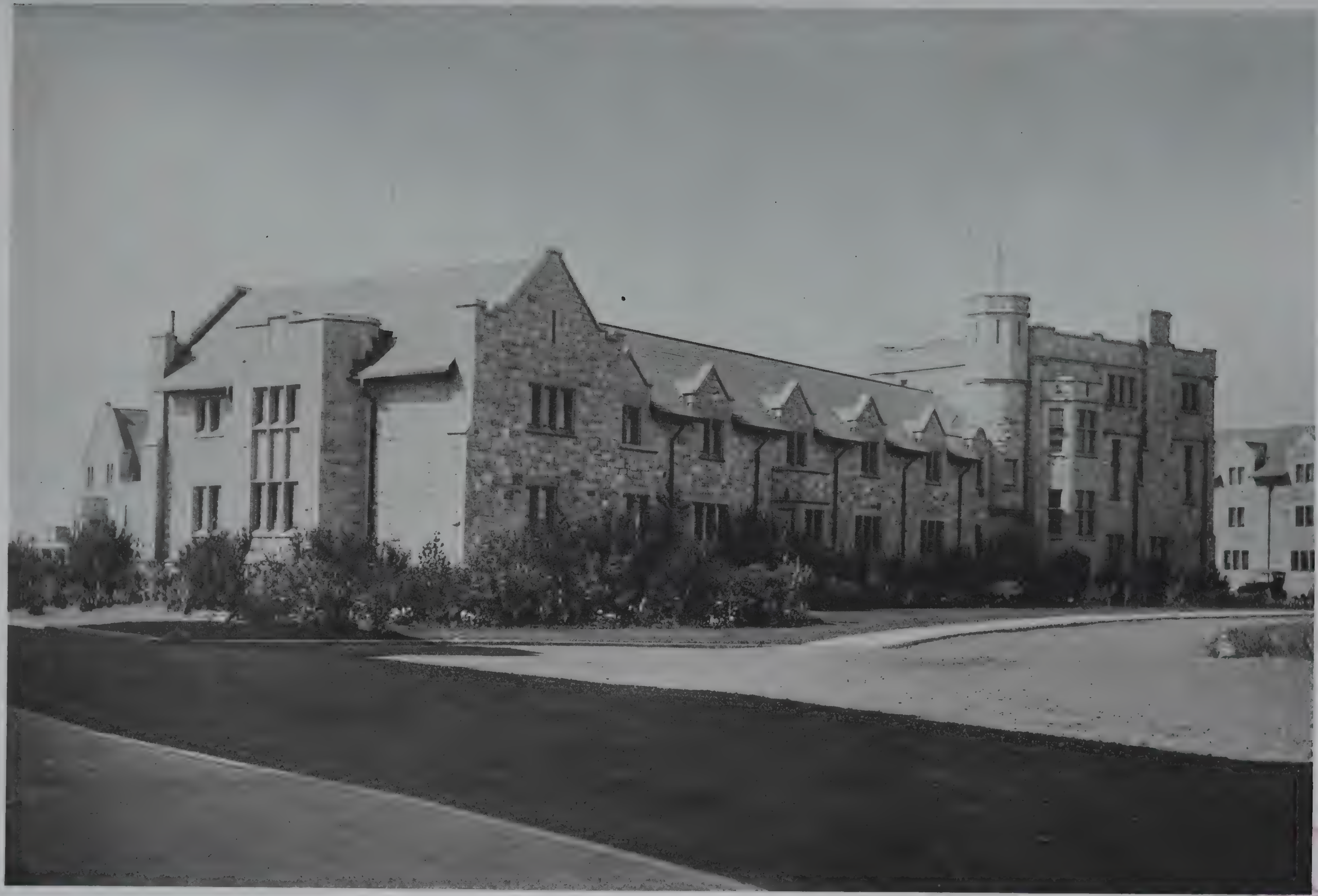


FIRST FLOOR

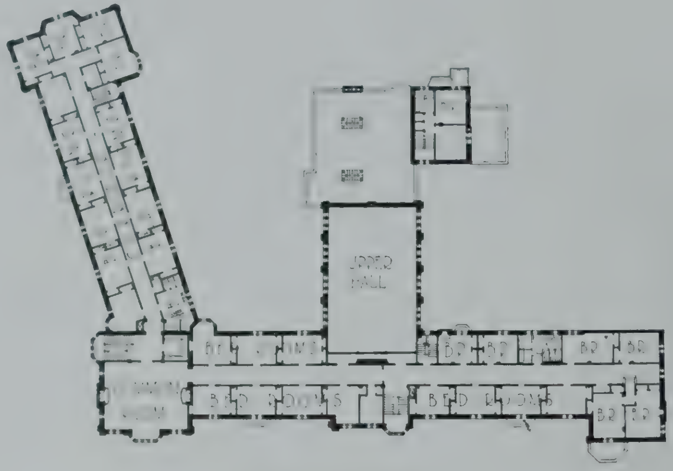
PLANS, COLONIAL HOUSE, CONNECTICUT COLLEGE FOR WOMEN, NEW LONDON, CONN.

HERBERT R. LOUD, ARCHITECT



Plans on Back

STUDENTS' RESIDENCE
UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA
DAVID R. BROWN & HUGH VALLANCE, ARCHITECTS



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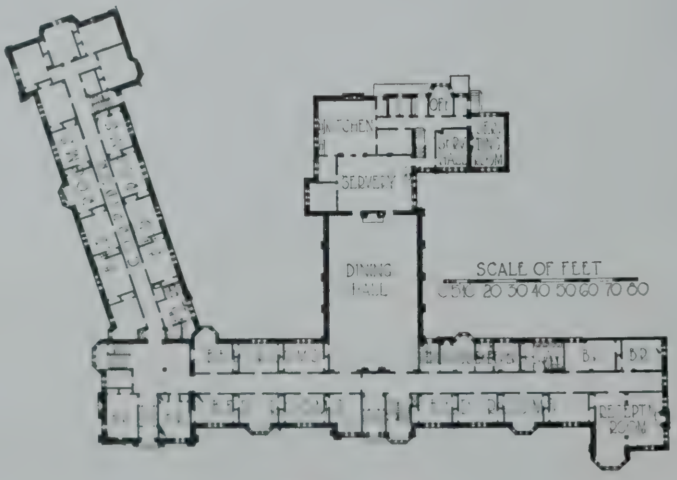

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PLANS, STUDENTS' RESIDENCE, UNIVERSITY OF SASKATCHEWAN, SASKATOON, CANADA

DAVID R. BROWN & HUGH VALLANCE, ARCHITECTS

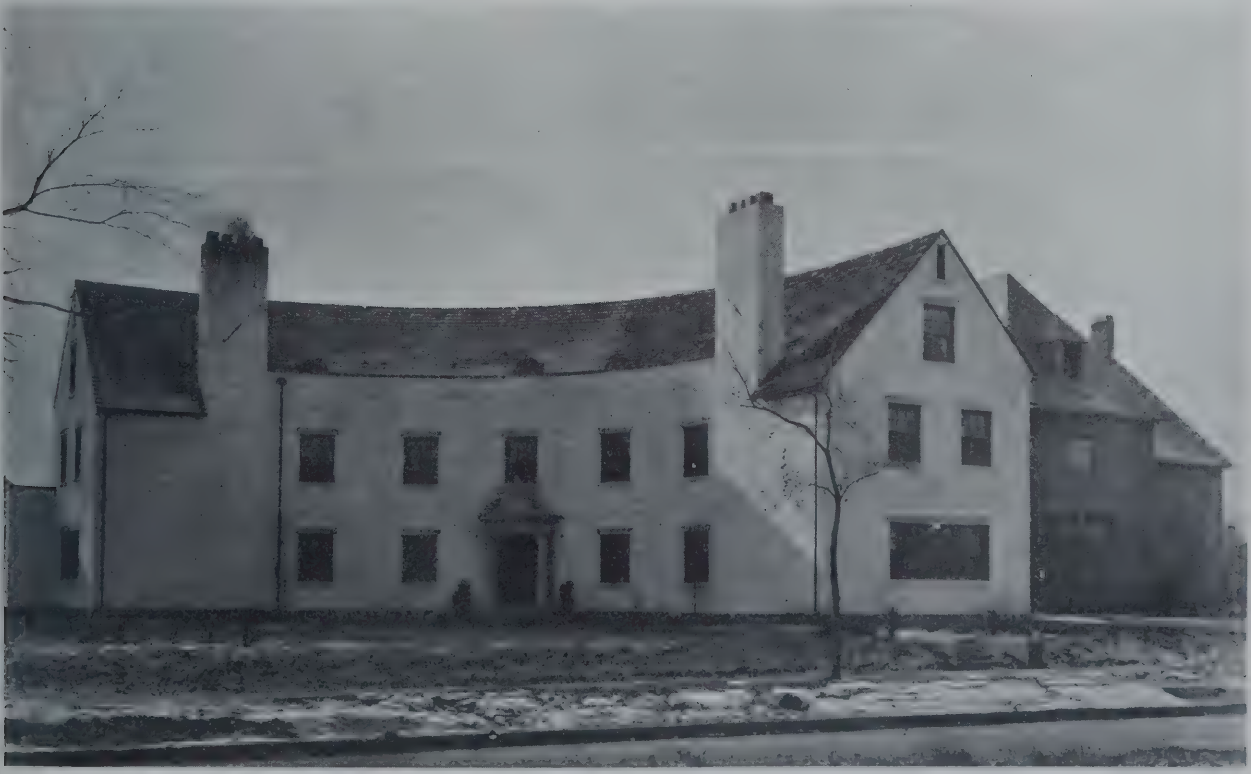
College Club and Fraternity Buildings

By MARY A. ROLFE

THERE exist two distinct university policies so far as fraternities and sororities are concerned. In the schools where these organizations found an early foothold, largely because they helped to solve the housing problem and in a sense set the standard for rooming houses and social usage, each organization soon acquired a house of its own, first by rental and then later by purchase or building. During the last ten years most of the chapters so started have very largely increased their active memberships, so that larger quarters have become necessary. This has led to an extensive building program throughout the country. Fortunately, the national organizations had foreseen this development, and many years ago started building loan funds. These funds, together with the increase in the number of alumni and in their wealth, have made possible the rapid building of new houses. These houses are being constructed on land owned by the fraternal organizations and are built with an increasing freedom from university oversight. This policy of relaxed supervision on the part of the authorities is due to the fact that the organizations now number among their alumni architects who through four years of experience learned the needs of fraternity house living and who are anxious to benefit by all the advice that they can obtain. It is these trained-by-experience architects who are responsible for the present policy of securing comfort and convenience as the first essentials, although the arrangement of the study rooms is in part due to the regular publishing by the universities of fraternity house grade averages. The fraternity is very important in university life.

The second policy is somewhat different. In those schools that were able to furnish dormitory facilities for a large number of their students, the fraternity and sorority developed as wholly social organizations within the dormitories. When the demand for permission to have their own homes came, it was discountenanced until the need of additional dormitory facilities and the rise in the costs of building materials caused the authorities to look kindly upon the proposal. In most of these schools the plan has been followed of permitting the fraternal organizations to build on specified land, either on land held in their own names but bought under university jurisdiction so that the location might be controlled, or on land owned by the university and kept in its name but rented year by year to the organization. In the latter case, the university underwrites the building contracts. Money for the buildings is raised through the national loan funds and the alumni as in the first case, outlined in the preceding paragraph.

Northwestern University is following the second policy. Some ten years ago it began the construction of the fraternity house group on the north campus. Fifteen of these houses have been completed and occupied, and the plan has been found so successful



Psi Upsilon House, University of Illinois, Urbana, Ill.
Frank T. Kepley, Architect

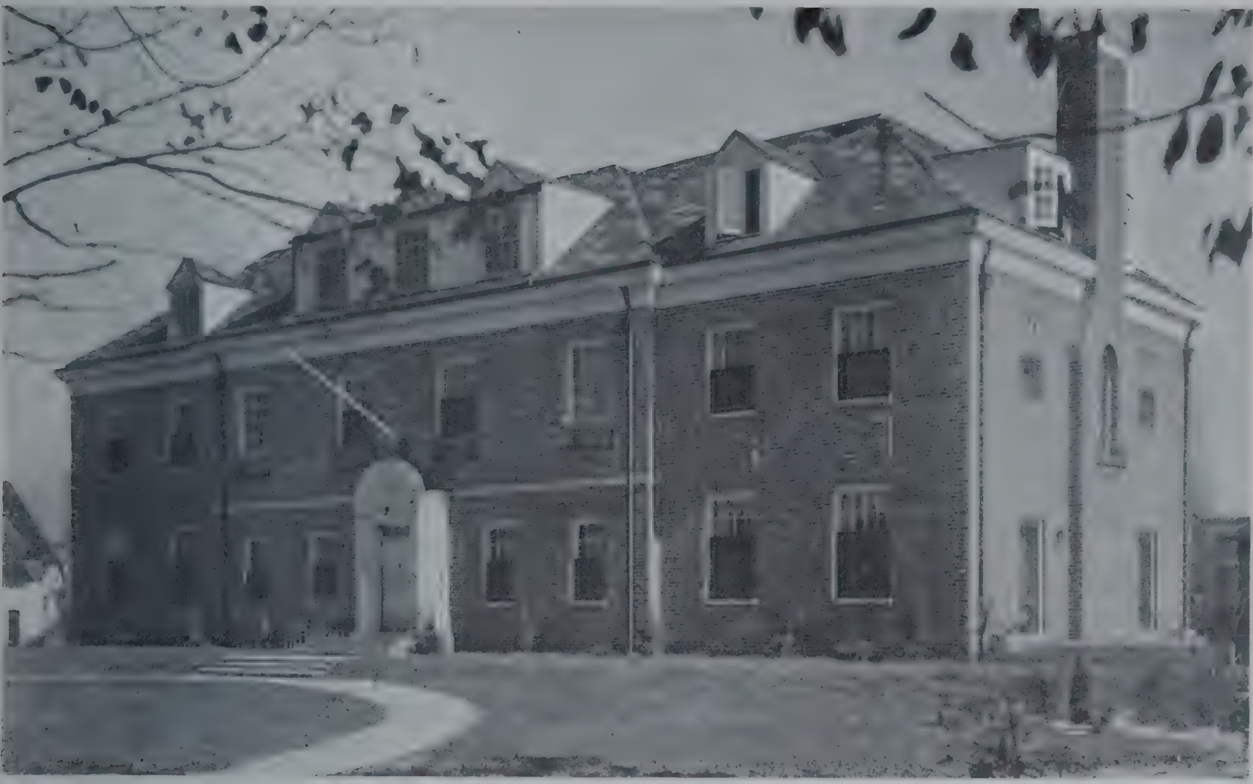
Phi Kappa House, University of Illinois, Urbana, Ill.
Benson & Son, Architects

that James Gamble Rogers has been retained to design 14 sorority houses for the south campus. These will be constructed of stone and will cover a block and a half of land in the heart of Evanston, adjoining the present campus. The cost, including the land, will be approximately $2,000,000. The plan for building is that the University rents the land, the organization raises at least one-quarter of the amount needed for building, and then the University underwrites the bonded indebtedness by guarantee. The balance due is paid in the form of yearly rental to the University, and thus the mortgage notes are gradually taken up. The architect consults with representatives of the different organizations, so that he can meet their needs as to sizes and arrangement of rooms, while yet keeping the parts in accord with the whole. This of course involves a liberal policy.

Socially, there are advantages and disadvantages in each policy; architecturally, there is no doubt but that the close grouping of houses all of the same type leads to more beauty and offers a finer problem to solve than does the heterogeneous, scattered building brought about under the older policy. It is also to be noticed that where a university has selected a type of architecture which it purposes to follow in its future building program and has completed some new buildings of that type, the fraternal organizations are increasingly likely to select designs in accord with the university type. Sometimes, where the architect is an alumnus of the organization, the building may be built after a design conceived by him when in his young, just-after-graduation days he traveled in Europe. Thus Scottish castles, English country houses, Italian villas and French *chateaux* may live again near our campuses, almost always shorn of many of their old-world accessories which cannot be reproduced with the limited means at the architects' disposal. Where an architect is employed who has had no connection with the university, he is very likely to follow the suggestion of the university architect that he build after the chosen style and get his materials from the same sources. Alumni who have become familiar with the campus plans of the university while students will also sacrifice their individual desires to the general scheme in the expectation that the day will come when the university campus will reach out and join hands with the land on which their fraternity houses at present stand.

Planning Fraternity and Sorority Buildings

Because architects who have lived in fraternity houses or else those who through being members of architectural faculties or through residence in university towns have become familiar with the needs of such buildings are very largely being employed as the designers of the new buildings, these houses are being planned primarily for comfort and convenience rather than for display. In fact the tendency away from the "individualistic" and toward the "common" type on any given college or university campus is very marked —the type being that which has been chosen as the future "university" type. This merging of each social unit into the whole is reflected in the keener interest being felt in the interiors of the houses—in finer



Delta Phi House, University of Illinois, Urbana, Ill.
Cervin & Horn, Architects

woodwork, more interesting doorways and fireplaces, more and larger bathrooms, etc., and in other ways.

The present tendency in planning seems to be to have one large living room,—large enough to accommodate from 40 to 50 members and their guests, with one or more smaller rooms opening off or opening in series from it. These rooms are on the same floor level, and have wide openings or French doors between them, so that they can be opened up for dancing. It has been found that it is much more economical to design the houses with this purpose in view than to rent halls for the dances, and it is certainly far more pleasent. The dining room is often across the hall from the living room, and is so arranged that it can be made to enlarge the dancing space. Because it is thus designed to serve a double purpose, there is likely to be a fireplace in the dining room as well as in the living room. In a number of fraternity houses alcoves form parts of the dining rooms. These connect with the serving pantries, and are used for serving refreshments during dances. The general plan of the main floor of a house should include an appropriate place for the orchestra which will be required for dances. Sometimes this is a space in the main hall, sometimes it is on a balcony, and again in the reception room, according to the arrangement as well as the sizes of the rooms.

In order to save the trouble of arranging the rooms for meetings, and also in order to have the archives near by, many of the new fraternity houses are being built with their chapter rooms in the basements, with the fireproof safes in the same rooms or in adjoining rooms or corridors. This arrangement permits the routine of the houses to go on as usual in spite of the fact that meetings are being held in the chapter rooms. It also permits the calling of meetings at only short notice, because there is no need for rearrangement or adjustment of furnishings. Some of these chapter rooms are without windows, thus returning to the primitive secret society's idea. These have, instead of the suction air currents common with the old pueblo Indian *kiva,* which served the purpose of ventilation, the most approved fan ventilating systems and other apparatus known today.

Sleeping quarters in these fraternity buildings are usually at the tops of the houses or divided into two or more sections occupying the corners of the buildings. These are large rooms, fitted with double-deck beds. Most of these dormitories are unheated, and house rules demand that the windows shall be kept open day and night. In a few of the newer houses a fan ventilating system keeps the air in the dormitories moving at all times. In such buildings the windows may be closed during storms. The placing of the dormitories up under the roofs prevents the entrance of rain unless the wind is strong.

The better houses are building their study rooms for two people, with two closets or built-in wardrobes. Experience has taught that more than two students in a room cannot do good work. These rooms are of fair sizes, well lighted and ventilated, and furnished with desks and chairs. They are not lounging rooms, and therefore they do not have couches, easy chairs, etc. Living rooms, card rooms,

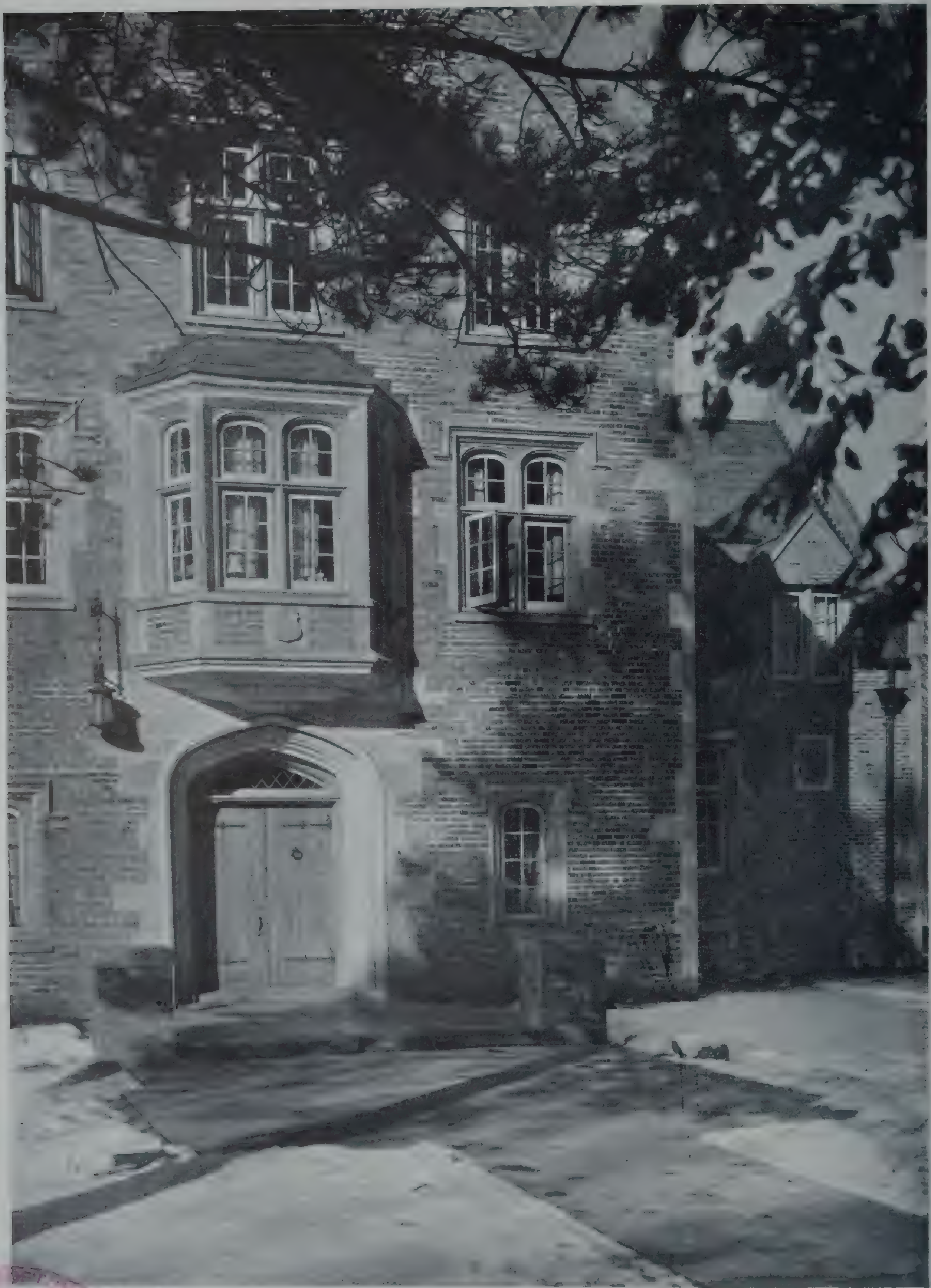


Photo. [illegible] Inc.

DETAIL, ENTRANCE, ALPHA DELTA PHI HOUSE, UNIVERSITY OF ILLINOIS, URBANA, ILL.
VARNEY RANDALL, ARCHITECT

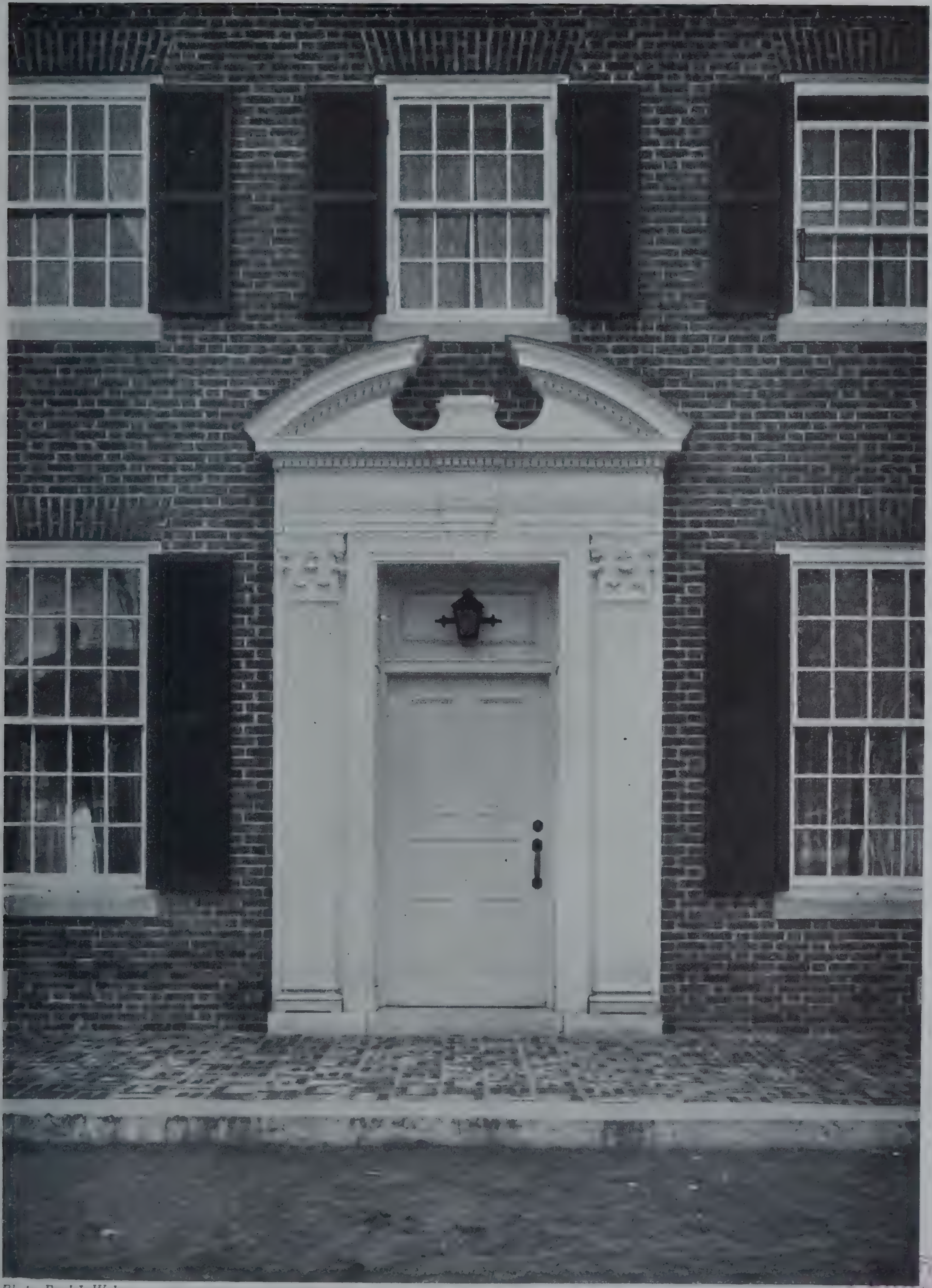
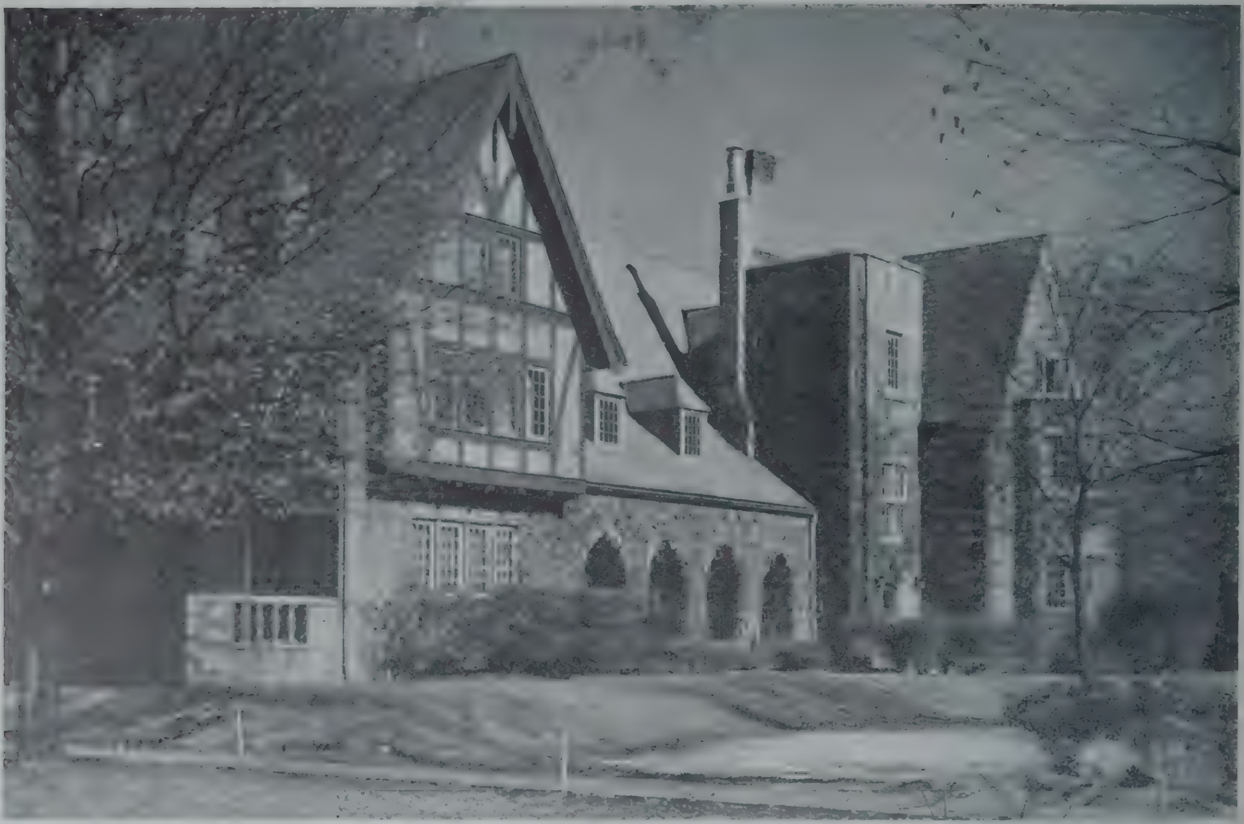


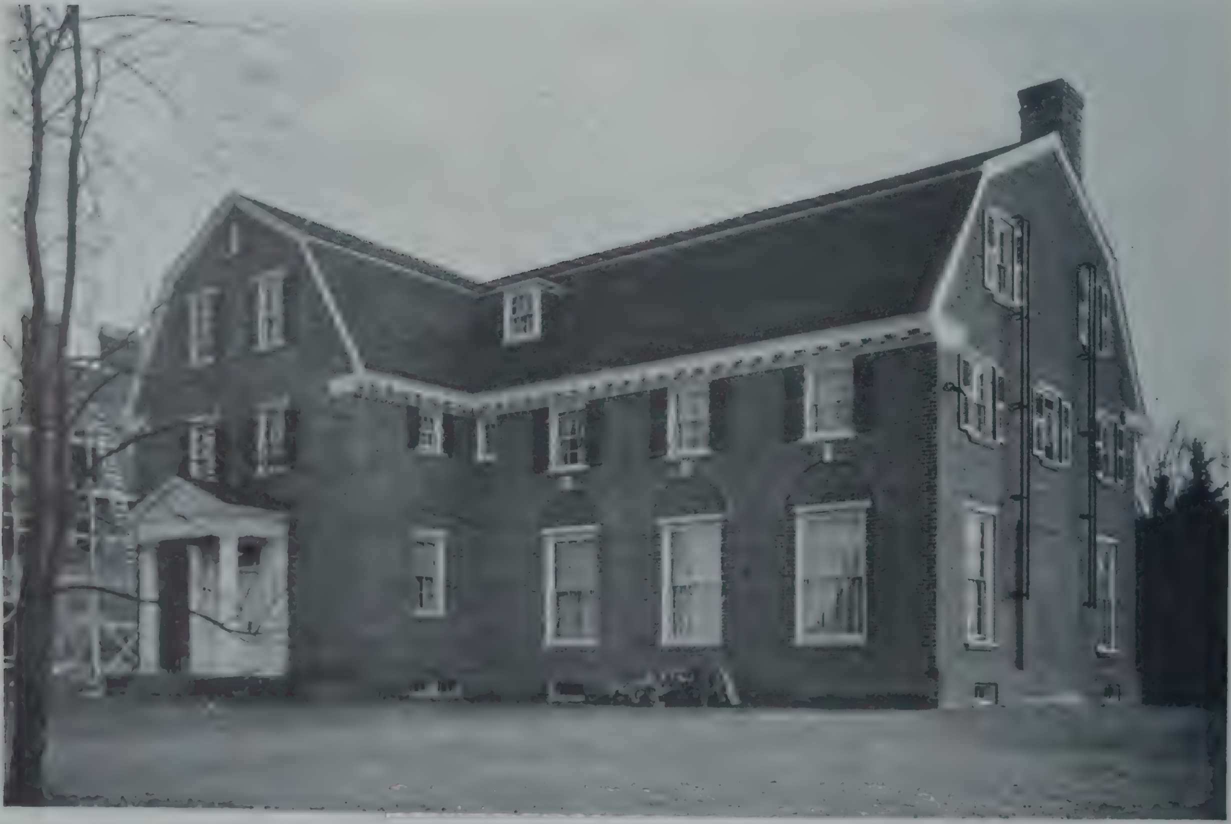
Photo. Paul J. Weber

DETAIL, ENTRANCE, SIGMA NU HOUSE, DARTMOUTH COLLEGE, HANOVER, N. H.

LARSON & WELLS, ARCHITECTS



SIGMA PI HOUSE, UNIVERSITY OF ILLINOIS, URBANA, ILL.
J. W. Royer, Architect



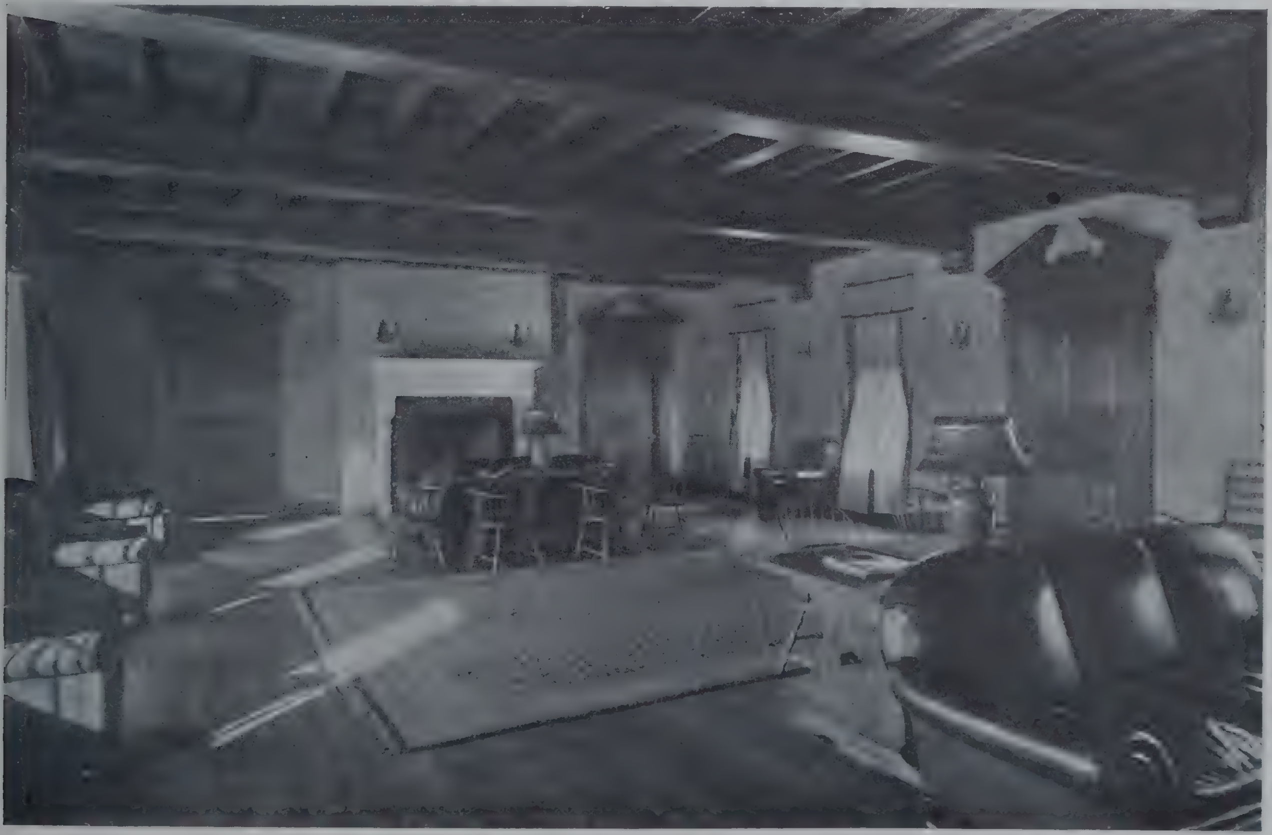
DELTA TAU DELTA HOUSE, DARTMOUTH COLLEGE, HANOVER, N. H.
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS

music rooms, libraries and sun parlors are open to those who do not wish to study. Women's houses often have upstairs living rooms also. Small study rooms are provided near the telephone booths, so that students operating the telephones may work while on duty. Systems of bells summon the persons wanted, and the number of rings tells them whether they are telephone or doorbell calls. Some of the houses provide special single study rooms for the president and secretary, so that they may be alone for conferences and may work without interruption when they can be free for work.

Bathrooms have a tendency to be split up, each in two or three units,—wash room, shower room, and toilet room. A fraternity house built for 32 members will have as many as ten wash bowls, with other facilities in proportion. Tubs for bathing are seldom found in the new houses, except off from the guest room, the hospital room, or the chaperone's room. A number of the houses vary the ceiling heights, having high ceilings for important living rooms, but lower ceilings for the dining rooms and smaller living rooms. Sometimes this is made possible by going down a step or two to the living room; sometimes by putting the dining room in the basement, where it makes a convenient lounging and refreshment room during dances, and is convenient in other ways.

Guest rooms for alumni and parents are provided in all the new houses. If these are on the first floor, they also occasionally serve as dressing rooms for the girls who attend the parties. When the guest rooms are on the upper floors, dressing rooms for visitors are provided on the first floors or on the landings leading to the second floors. Chapters having many non-resident members also provide rooms for them. Such a room will contain study tables, lockers, etc., for the use of the members between classes. Valet or pressing rooms of fireproof construction are provided by some of the houses. Hospital rooms with bathroom facilities are also provided, so that those having colds and minor ills may be cared for until the patients are ordered to the hospital. In sorority houses and in some fraternity buildings a suite of rooms is provided for the "house mother." Sometimes her bathroom also serves as the guests' bath. In women's houses her suite is conveniently located near the head of the stairs leading to the second floor, or else off the main hall on the first floor.

Most of the newer fraternity houses are of fireproof or semi-fireproof construction, and are built to last. The bathrooms are finished in tiles or marble, and the halls and sun parlors are paved with tiles, which are often very beautiful, with composition tiles, or else are laid with hardwood floors, according to the type of house. The hardware used is generally strong, and the woodwork simple and durable. Ornament is used at only a few well chosen points, and the walls are not covered with inferior paintings. When new furnishings are bought, an effort is made to buy objects in keeping with the type of the house and of kinds that have proved to be of lasting worth. This makes for consistency.



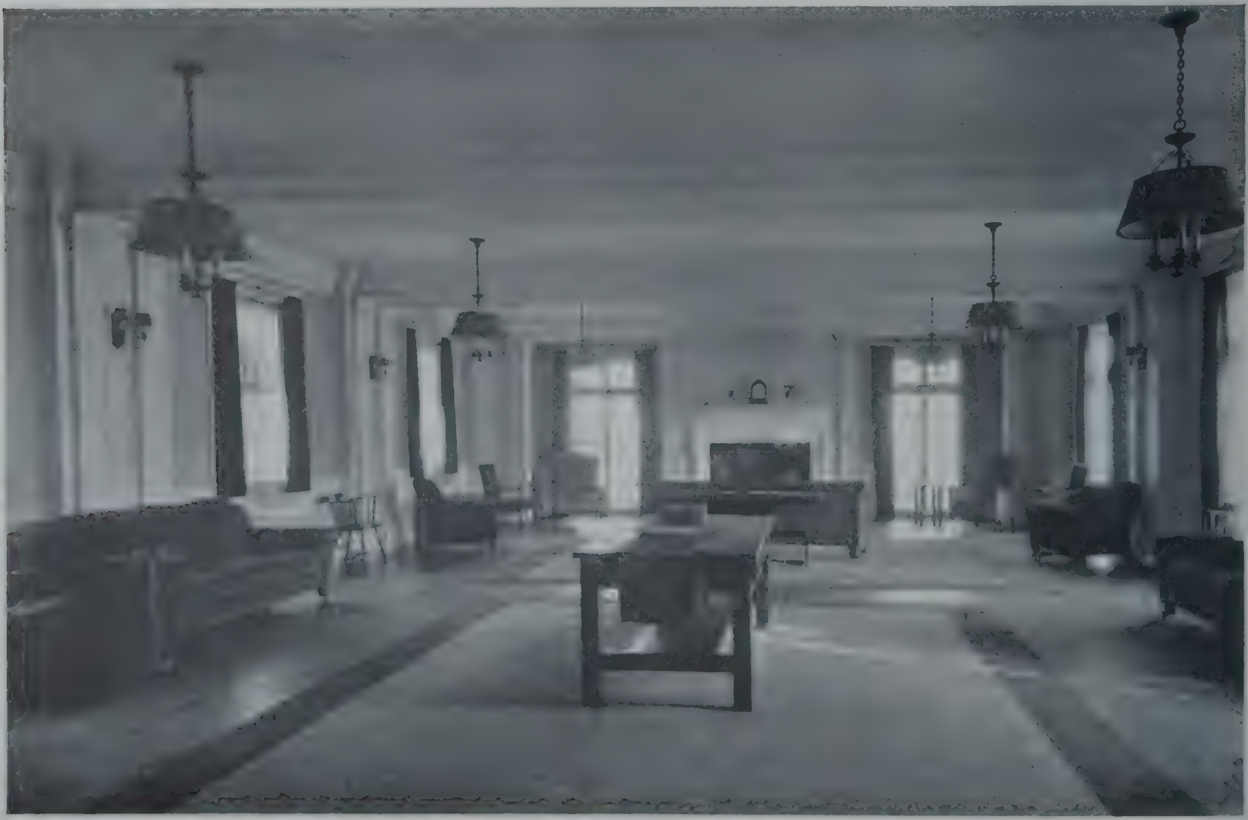
Lounge, Sigma Nu House, Dartmouth College, Hanover, N. H.
Larson & Wells, Architects

The building of garages adjacent to fraternity houses is simply not done. This is in part due to lack of funds, and in part due to the movement against the use of automobiles by students. No provision is made for space for them in locating the houses on the lots, and their use is discouraged.

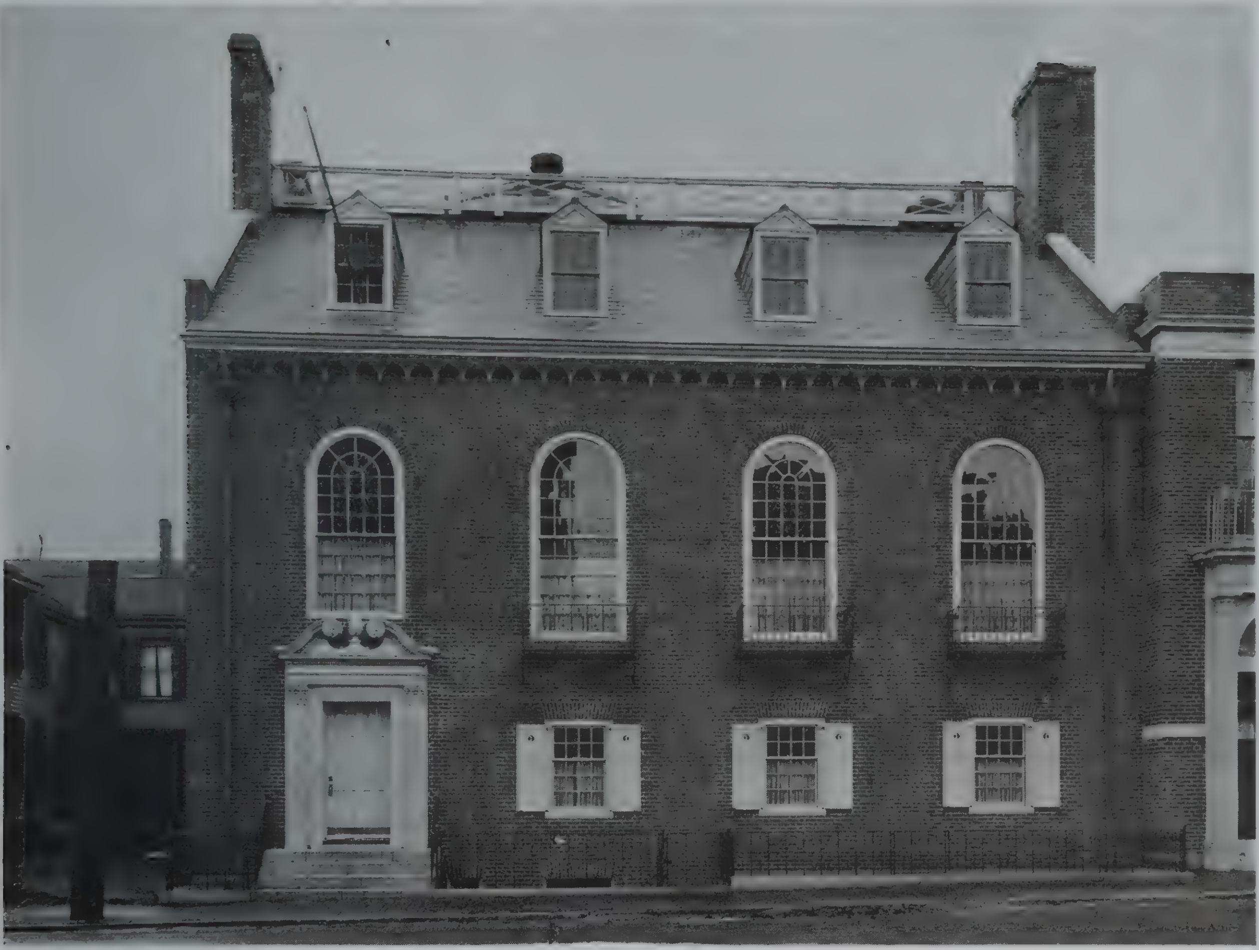
A real effort is being made to secure lots of adequate sizes for the houses, and to landscape what space there is and keep it in order. Much pride is shown in trees, hedges and shrubbery, and these receive a great deal of attention from the members and "pledges" or prospective members. The older organizations that foresaw the need for larger quarters and purchased lots years ago have, naturally, the larger areas. There is a decided tendency on the part of the younger organizations to buy farther away from the active center of the campus in order to get larger plots of land. They also try to buy adjacent to the newer portions of the campus, in order to gain the advantage of the open spaces in front of their houses which will be thus provided.

The majority of the new houses which are built independently of the universities at which they are located, seem to be costing about the same amounts—from $60,000 to $80,000. Here and there the cost is only $40,000, and now and then it runs up to $100,000. As a rule, these more expensive houses are not any larger than are those costing less. The increased cost is due to more costly stone construction or to use of finer interior finish, or to both. The cost price to the fraternity does not, however, represent the building's actual cost, since every house so built receives help from its alumni members in different professions or lines of business. Perhaps it is the architect whose services are donated, or those of the contractor or the supervisor or (as in one house of which I have knowledge) the materials were given at cost. This house paid a price over cost for no material save the steel beams used in the construction. It did, however, pay for its architect's service. One of the members supervised the building, which cost about $80,000. The value of the structure is therefore far above its actual cost price. These houses are generally planned for from 35 to 50.

There seems to be a very real tendency to build the plan of the house around a single object,—generally a gift from someone. In one instance it was an ancient Scottish door knocker which caused the design of the house to be Scottish. In another instance, two beautiful Italian vases established the scheme of the hall. In another case an overmantel was built to include a rare painting. All sorts of objects are thus made the shrines around which the houses are designed, and as a rule the thought which is thus necessitated has produced something beautiful and distinctive. Fraternity and sorority houses are centers about which there often cluster fond recollections, and frequently they exercise a powerful appeal upon former residents. Often, too, they receive gifts which frequently add greatly to the interest of their buildings, and have even been known to determine the entire character of new structures.

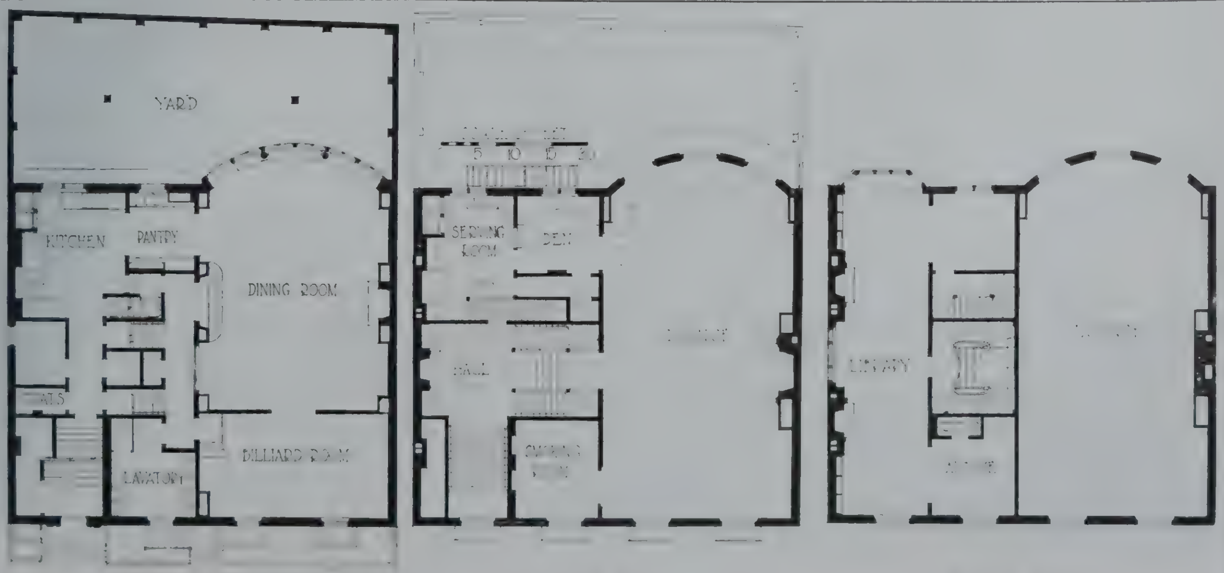


Lounge, Kappa Kappa Kappa House, Dartmouth College, Hanover, N. H.
Larson & Wells, Architects



S. K. CLUB, HARVARD UNIVERSITY, CAMBRIDGE, MASS.
COOLIDGE & SHEPLEY, ARCHITECTS

A SUCCESSFUL example of the use of Colonial architecture for college and fraternity clubs is that of the S. K. Club House in Cambridge. The exterior design shows a two-story, brick facade in which the entrance door is located at the end of the building, directly under one of the four tall arched windows which mark on the exterior the location of the living room within. Below these windows, the lower floor or basement rooms are indicated by small, rectangular windows with white painted wooden shutters and small panes of glass. Rain water leaders with ornamental leader heads make strong lines



Ground Floor First Floor Second Floor

FORUM SPECIFICATION AND DATA SHEET—72

S. K. Club House, Cambridge, Mass.; Coolidge & Shepley, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and wood, slow-burning.

EXTERIOR MATERIALS:
Brick with limestone and wood trim.

ROOF:
Slate.

WINDOWS:
Wood frame and sash; double-hung.

FLOORS:
Wood.

HEATING:
Hot air.

PLUMBING:
Enameled iron fixtures.

ELECTRIC EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Oak.

INTERIOR WALL FINISH:
Smooth plaster.

DECORATIVE TREATMENT:
Walls and trim painted.

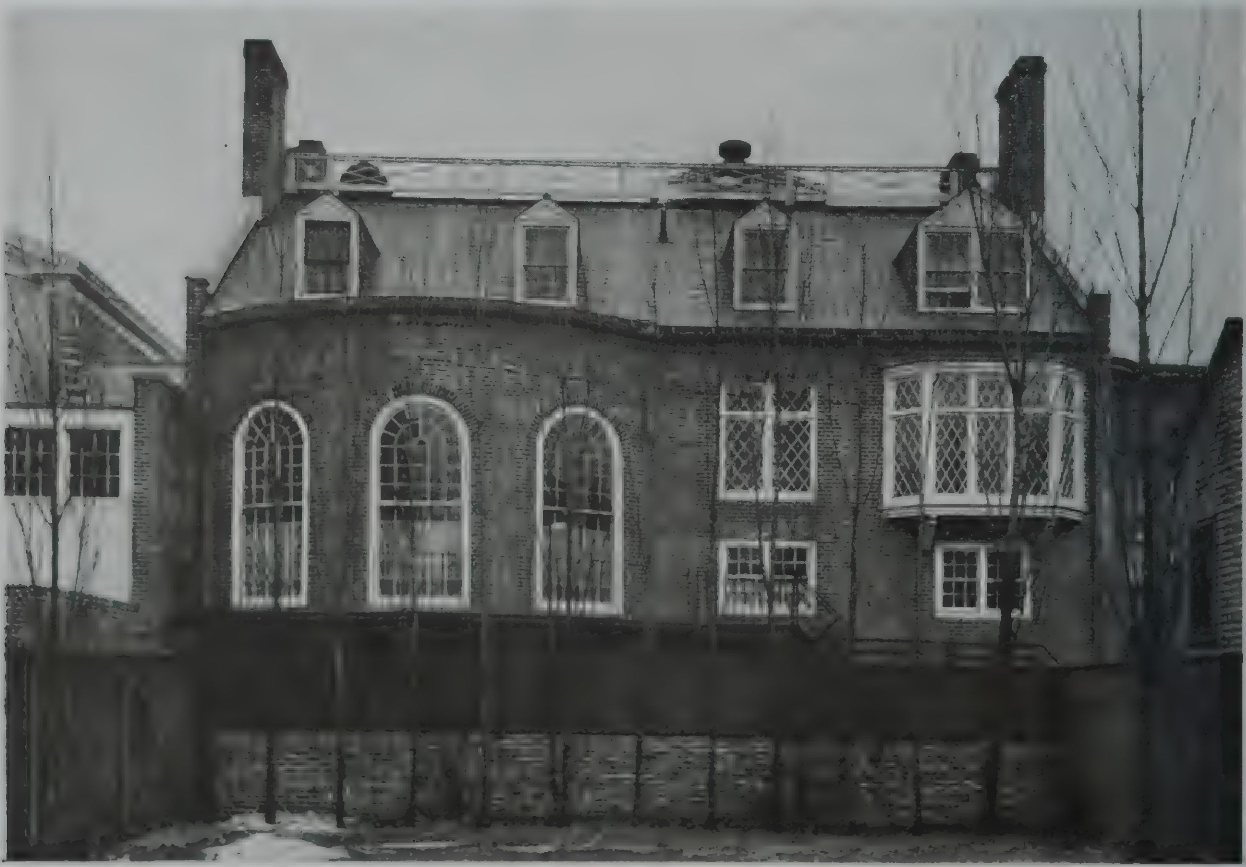
APPROXIMATE CUBIC FOOTAGE:
117,580

COST PER CUBIC FOOT:
24 cents.

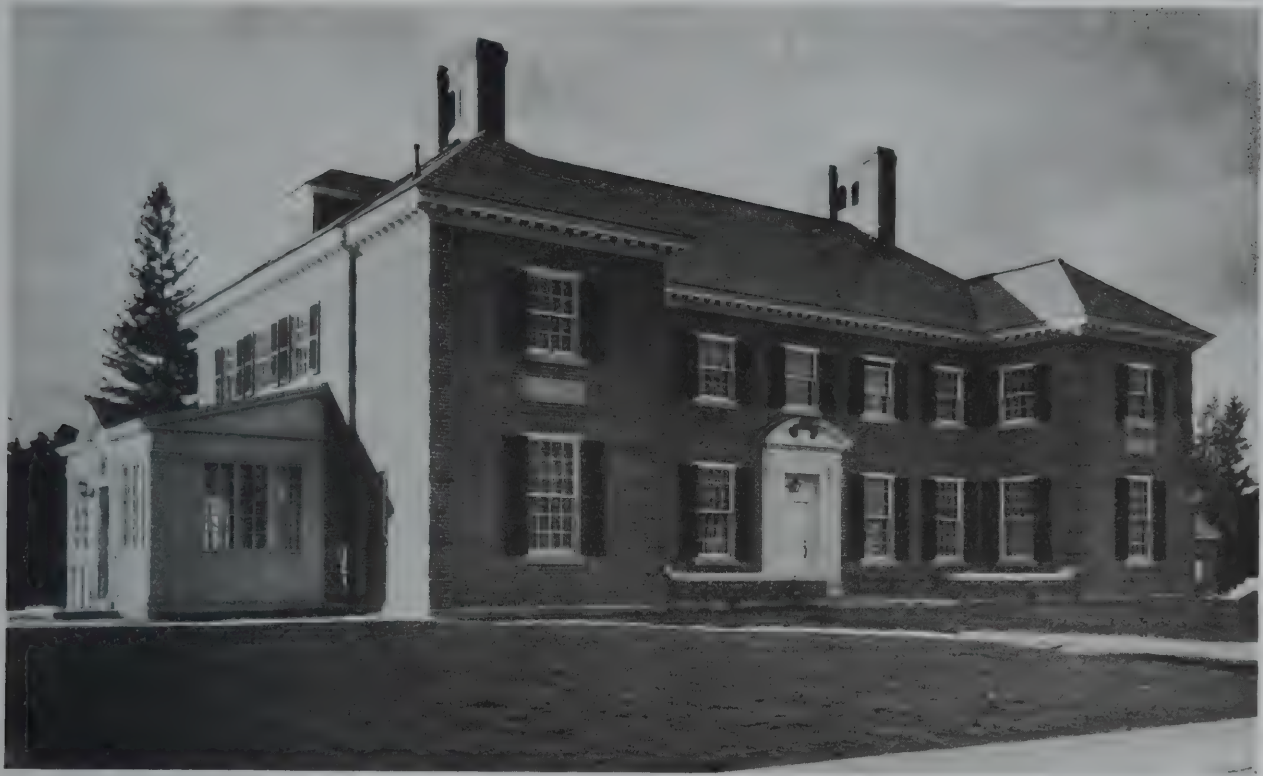
YEAR OF COMPLETION:
1916.

of demarcation at either end of this main facade.

The plans show a convenient arrangement on the ground floor of dining room and billiard room, with adjacent kitchen and pantries, coat room and lavatory. The main floor shows a large lounge which extends through the entire building from front to rear. On this floor, there are also a den, smoking room and serving room, the latter connected by dumbwaiters with the kitchen below. The main hall and double stairway form one of the architectural features of the building. Half of the second floor is taken up by the upper part of the lounge, which is two stories in height. The long, narrow library, extending the full length of the building, has two fireplaces and two spacious alcoves, one on the front and another at the rear. The plans of the building, as a whole, are interesting and unusual, as well as practical and convenient for the purpose it serves.

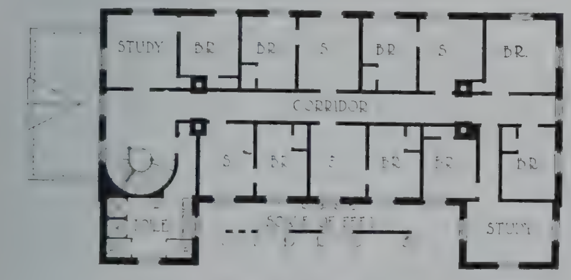


Rear View

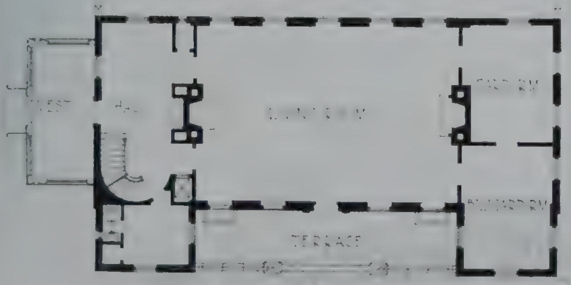


SIGMA NU HOUSE, DARTMOUTH COLLEGE, HANOVER, N. H.
LARSON & WELLS, ARCHITECTS

AMONG the many excellent examples of fraternity house architecture completed in the last two years, that of Sigma Nu at Dartmouth College must be placed near the top of the list. The building represents a conscientious and successfully studied adaptation of Georgian architecture. The scale of the detail suggests the Renaissance architecture of England rather than its Colonial counterpart in the United States. The front elevation shows two projecting bays, which terminate a narrow, brick-paved terrace across the center of the front. The relative scale of windows, the size of the panes of glass and the detail of the entrance doors are among the many features which confer architectural distinction.



Second Floor



First Floor

One of the interesting features of the plan of this house is the location of the entrance hall and vestibule at one end instead of at the center of the building. This arrangement makes it possible to place a large and well proportioned living room at the center of the house, with windows on two sides and a fireplace at each end. This living room is immediately accessible from the entrance hall, where a fine circular staircase adds to its Georgian spirit and charm. The projecting bay at the entrance end of the house is occupied, on the first floor, by a large coat room and lavatory. Opening off the entry way between the hall and living room are located on one side, the telephone closet, and on the other the dumbwaiter. At the end of the house opposite the entrance hall, the first floor plan shows a card room and a billiard room, each of which opens off the living room. The main hall is reached through a spacious vestibule or glassed-in porch. This arrangement is particularly adaptable and desirable in such a climate as that of Hanover, where winters are long and severe. The details of this entrance porch show the same refinement and study as does the rest of this building.

The second floor plan shows a balanced arrangement of 14 bedrooms, practically equal in size. Above the coat room and lavatory on the first floor, a large washroom with showers and toilets is located. This adequately takes the place of individual bath-

FORUM SPECIFICATION AND DATA SHEET—73

Sigma Nu House, Dartmouth College, Hanover, N. H.; Larson & Wells, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and hollow tile; wood stud partitions and floor joists; slow-burning construction.

EXTERIOR MATERIALS:
Brick with painted wood trim.

ROOF:
Slate.

WINDOWS:
Wood frame and sash; double-hung.

FLOORS:
Marbleoid, basement and toilets; white oak, first floor and clear maple for upper floors.

HEATING:
Vapor steam.

PLUMBING:
Cast iron and brass piping; enameled iron fixtures.

ELECTRIC EQUIPMENT:
Lighting and cooking connections.

INTERIOR MILL WORK:
Plain oak, first floor; elsewhere, stained pine.

INTERIOR WALL FINISH:
Plaster, painted.

DECORATIVE TREATMENT:
Walls painted, and trim painted and stained.

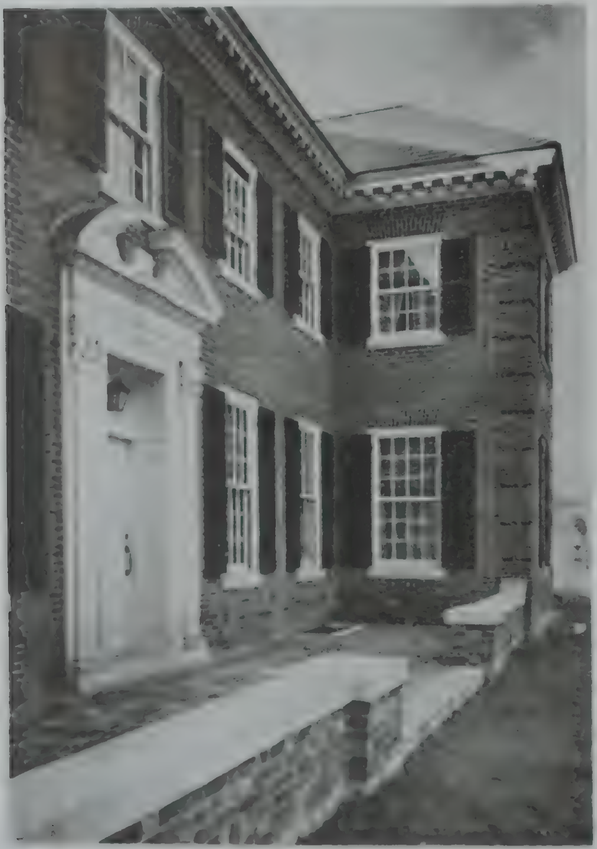
APPROXIMATE CUBIC FOOTAGE:
94,800.

COST PER CUBIC FOOT:
45 cents.

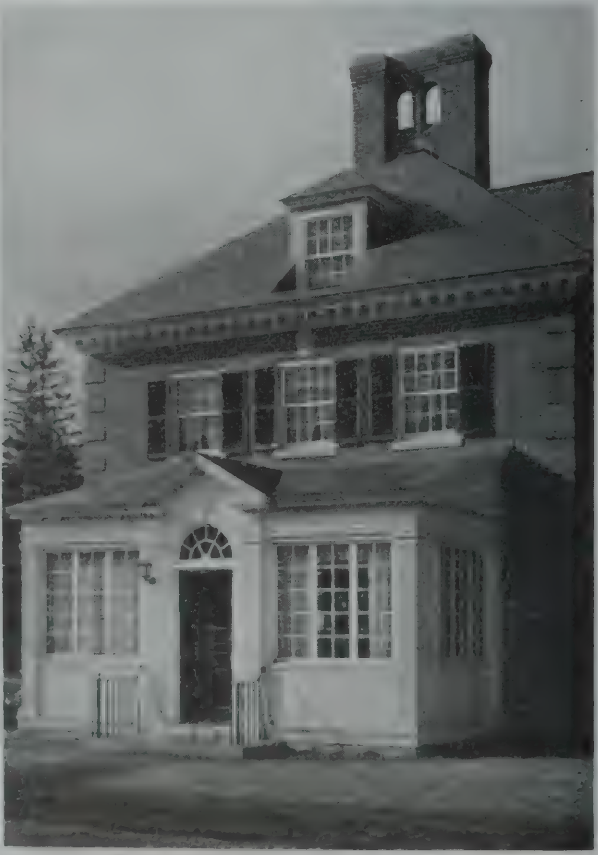
DATE OF COMPLETION:
September, 1925.

rooms, which would have occupied much of the space on this floor now available for bedrooms. The main staircase continues up to the third floor or attic, which is lighted by a number of dormer windows. This floor contains three additional bedrooms and a large assembly room designed for special fraternity occasions. In the basement are located a laundry, large trunk room, boiler room and coal storage space, as well as a good sized room to be used as a living room.

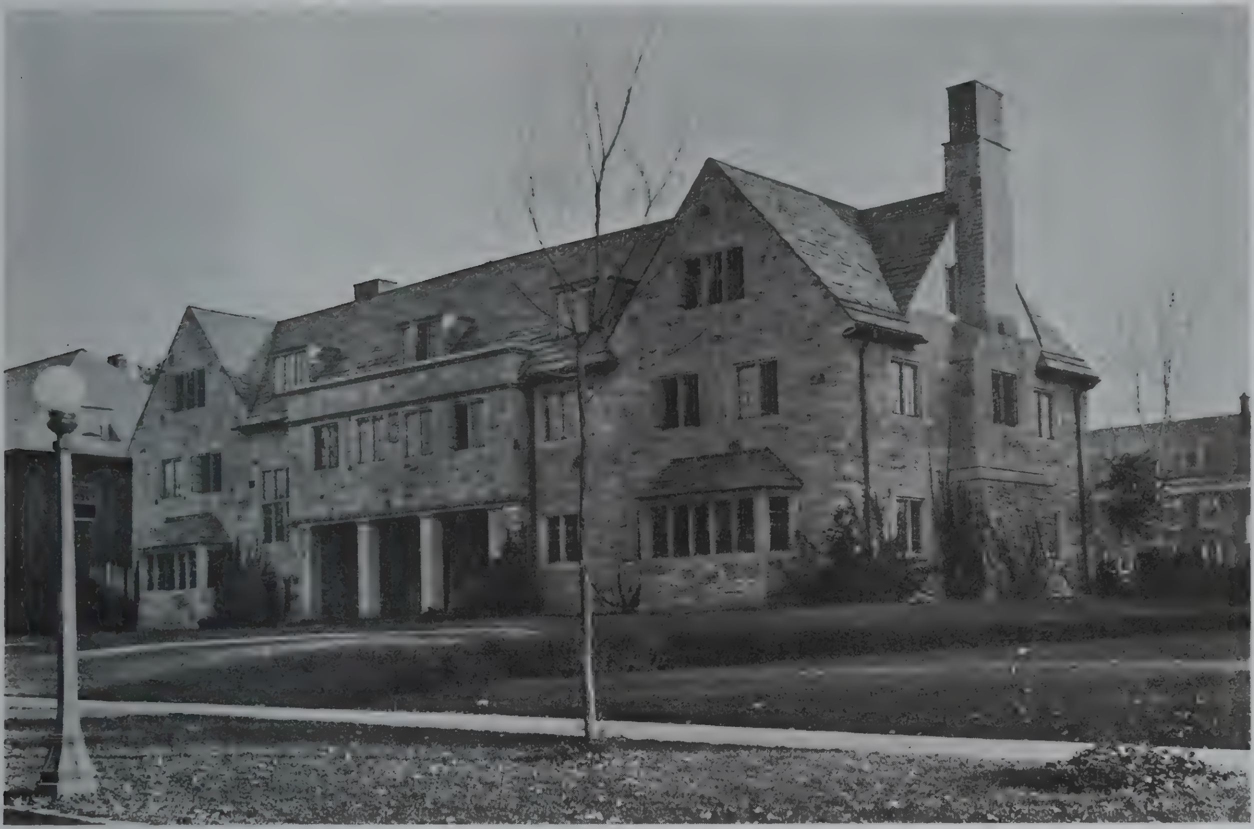
Study of this building shows that its strikingly pleasing qualities are the result of infinite care taken in working out the details of plan and design. It would be difficult indeed to find a fraternity building more distinguished or more notable for its quiet good taste and architectural reserve. It is a structure of which its architects may well be proud.



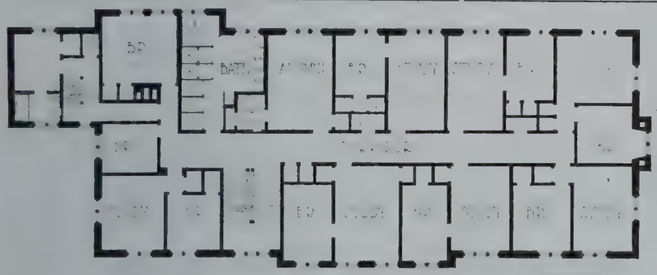
Terrace Entrance



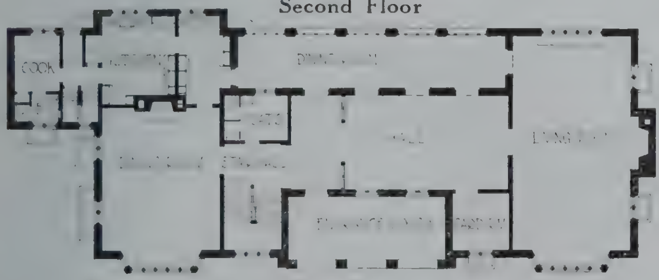
Main Entrance



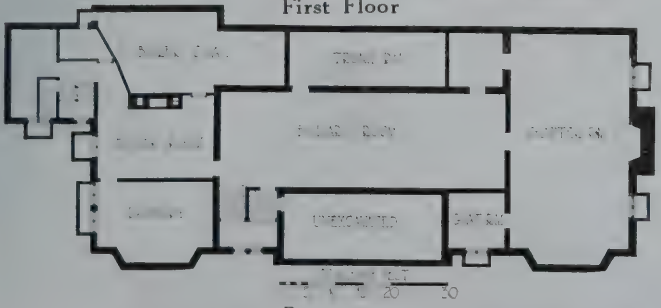
PHI DELTA THETA HOUSE, UNIVERSITY OF ILLINOIS, URBANA, ILL.
HOWARD VAN DOREN SHAW, ARCHITECT



Second Floor



First Floor



Basement

A FRATERNITY house of outstanding architectural importance is that of Phi Delta Theta at the University of Illinois. Built of local limestone laid random, a simple adaptation of Elizabethan architecture has been successfully used. The length of the building is broken on the front facade by two gables which balance a central entrance bay composed of an open porch with square piers on the ground floor and windows above. The parapet of this bay happily breaks the long line of eaves. The design, as a whole, successfully and adequately interprets the purpose and use of the building, which has the semblance of a private house with the added formality of a balanced design in keeping with the dignity of one of the leading college fraternities. At one end of the building, a tall chimney provides a picturesque terminal feature which adds to the architectural character of the structure. The rear or garden facade gives an even better idea of the purpose for which the building is intended. The end gables, which balance those of the front facade, are carried through to the rear, where one gable is brought out slightly from the body of the house to give contrast and relief to the otherwise unbroken wall surface. Five

FORUM SPECIFICATION AND DATA SHEET—74

Phi Delta Theta House, University of Illinois, Urbana, Ill.; Howard VanDoren Shaw, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Reinforced concrete; roof, frame.

EXTERIOR MATERIALS:
Limestone trimmed with cut stone.

ROOF:
Random slate.

WINDOWS:
Metal casements.

FLOORS:
Black terrazzo in dining room; hall and living room, oak; upper floors, concrete; toilets and baths, terrazzo.

HEATING:
Vapor steam.

INTERIOR MILL WORK:
White oak.

INTERIOR WALL FINISH:
First floor, sand-finish plaster walls; upper floors, smooth plaster with three coats of lead and oil; Bedford stone window enframements throughout.

DECORATIVE TREATMENT:
Simple English.

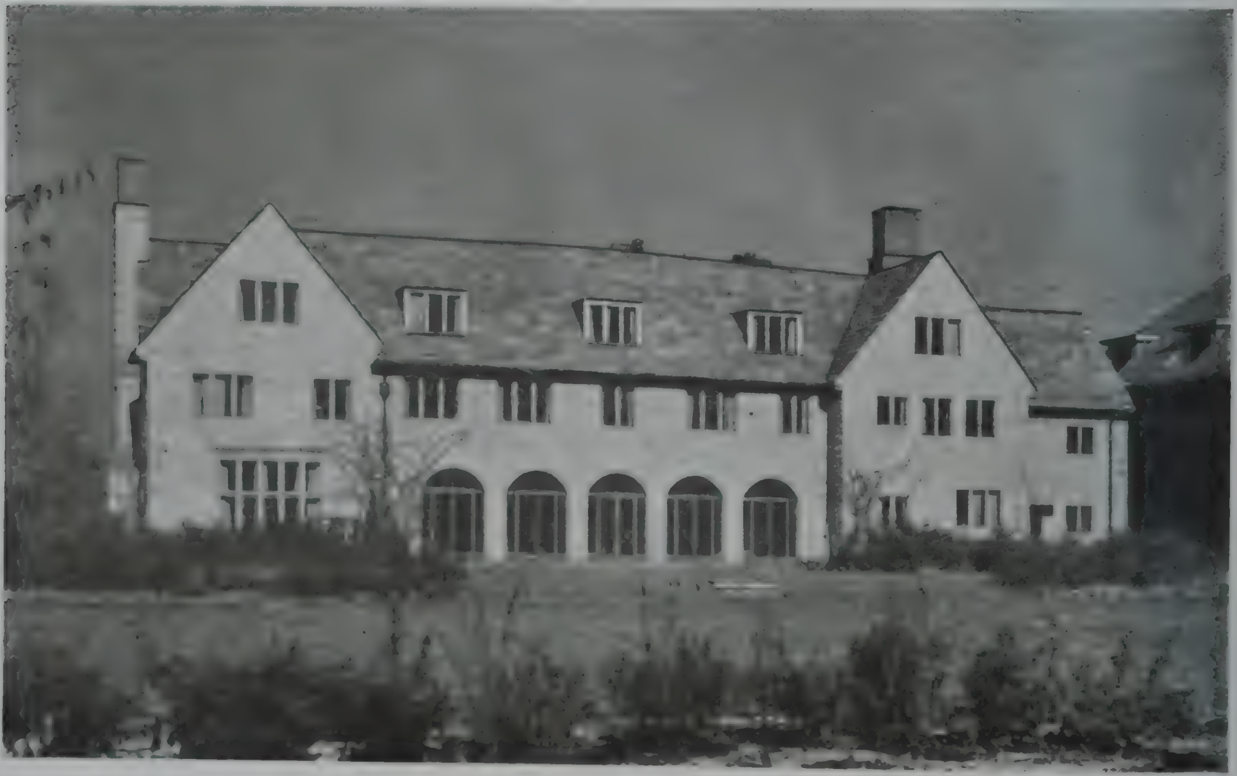
APPROXIMATE CUBIC FOOTAGE:
162,800.

COST PER CUBIC FOOT:
50 cents.

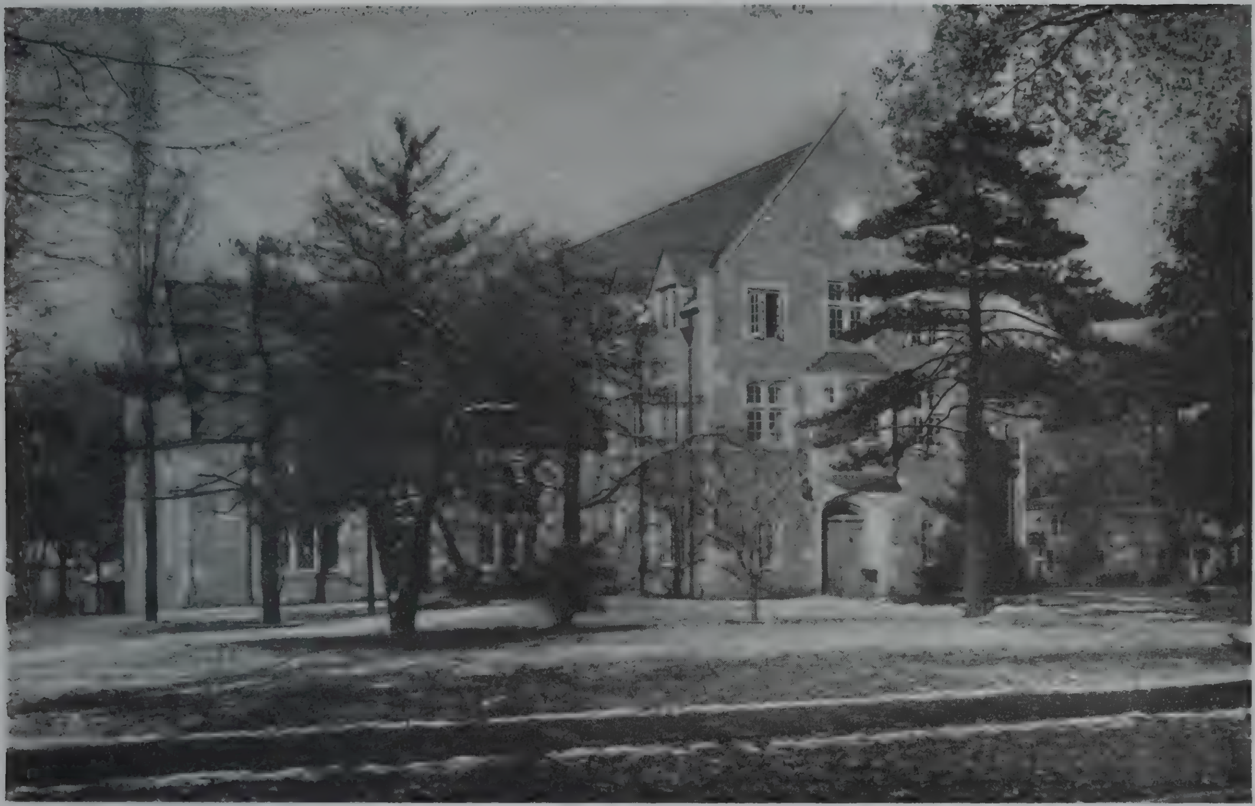
DATE OF COMPLETION:
November, 1922.

arches on the first floor mark the location of the dining loggia, which also serves as a living porch.

The first floor plan shows a spacious entrance loggia, in which is located the entrance door. This floor contains, besides a large center hall, a spacious living room across one end of the building with bay window on the street end, and a card room, coat room, lavatory, and dining room with serving pantry and kitchen adjacent on the other end. The plan is simple and straightforward and is as balanced in arrangement as the exterior design. The second floor, reached by a wide staircase, contains nine bedrooms, most of which connect with separate studies; an alumni room, and a housekeeper's room and bath. Each bedroom is sufficiently large to accommodate two single beds. One large dressing room with showers and toilets serves all the bedrooms on this floor. The third floor has rooms to be used as combination studies and bedrooms, a store room, a general dressing room and bath, and a large dormitory accommodating 13 beds. A door at the rear of this dormitory connects with the servants' stairway at the end of the building. These bedrooms are all well lighted by carefully designed triple dormer windows.



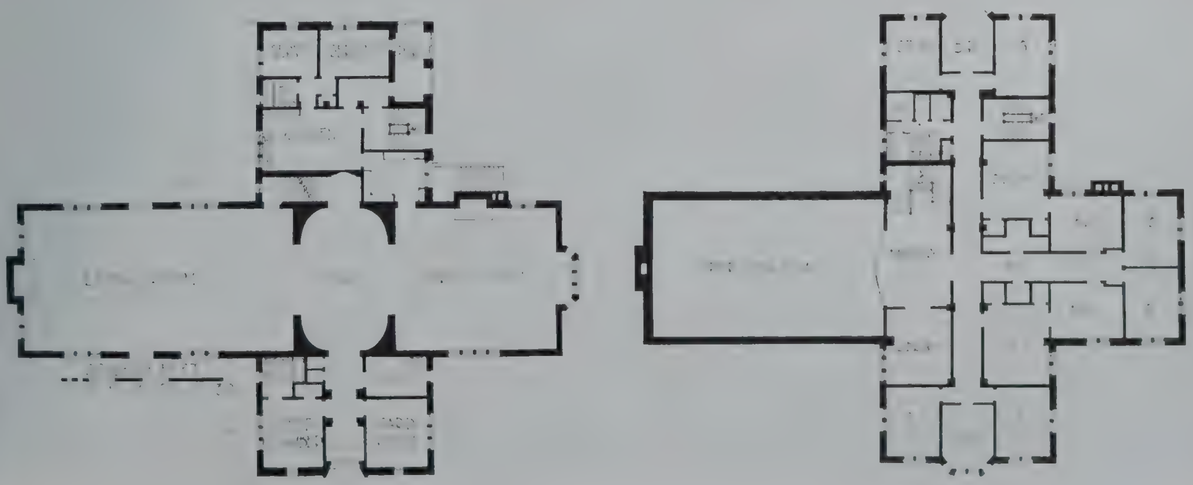
Rear View



ALPHA DELTA PHI HOUSE, UNIVERSITY OF ILLINOIS, URBANA, ILL.
RALPH W. VARNEY, ARCHITECT

ENGLISH collegiate architecture executed in brick with limestone trimmings is used for this spacious fraternity house. The design, resembling more that of a large parish house than that of a club, owes much of its charm to the wide range of color given by the brick of which its walls are built.

The cross shape of the building permits an interesting layout of rooms. Entering from one of the short arms of the cross, a guest room and bath are balanced on the opposite side of the vestibule by a card room, back of which is a large coat room. A short passageway leads from the entrance door into a large center hall, somewhat oval in shape. Large openings give access from this center hall to the living room on one side and the dining room on the other. These two rooms and the center hall occupy the main part of the cross plan. The remaining or top arm of the cross contains, besides a main stairway, a pantry connecting with the dining room, service stairs and two servants' bedrooms and bath. The living room is a story and a half high with rafters and ridgepole exposed. The stone-faced fireplace as well as the mullioned windows and diamond panes gives English charm and atmosphere to this



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—75

Alpha Delta Phi House, University of Illinois, Urbana, Ill.; Ralph W. Varney, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fireproof.

EXTERIOR MATERIALS:
Red face brick with limestone trim.

ROOF:
Slate.

WINDOWS:
Wood casements; mostly leaded glass on first floor.

FLOORS:
Dining room, red concrete with black border; kitchen and upper floors, finished concrete; remainder of first floor, wood.

HEATING:
Steam.

ELECTRICAL EQUIPMENT:
Lighting; special wrought iron fixtures for first floor.

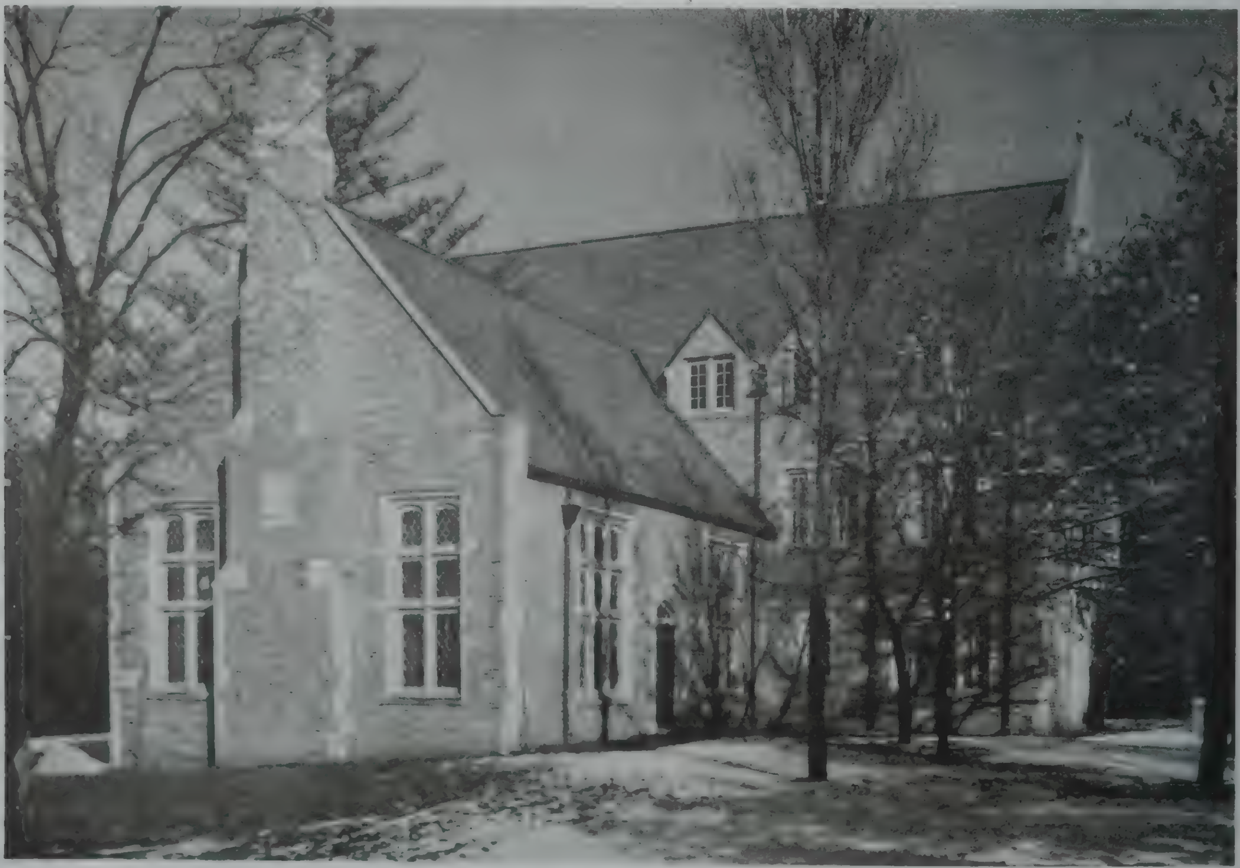
INTERIOR WALL FINISH:
Walls of living room and wainscot of dining rooms in brick; living room ceiling of pecky cypress; other surfaces plaster.

APPROXIMATE CUBIC FOOTAGE:
185,000.

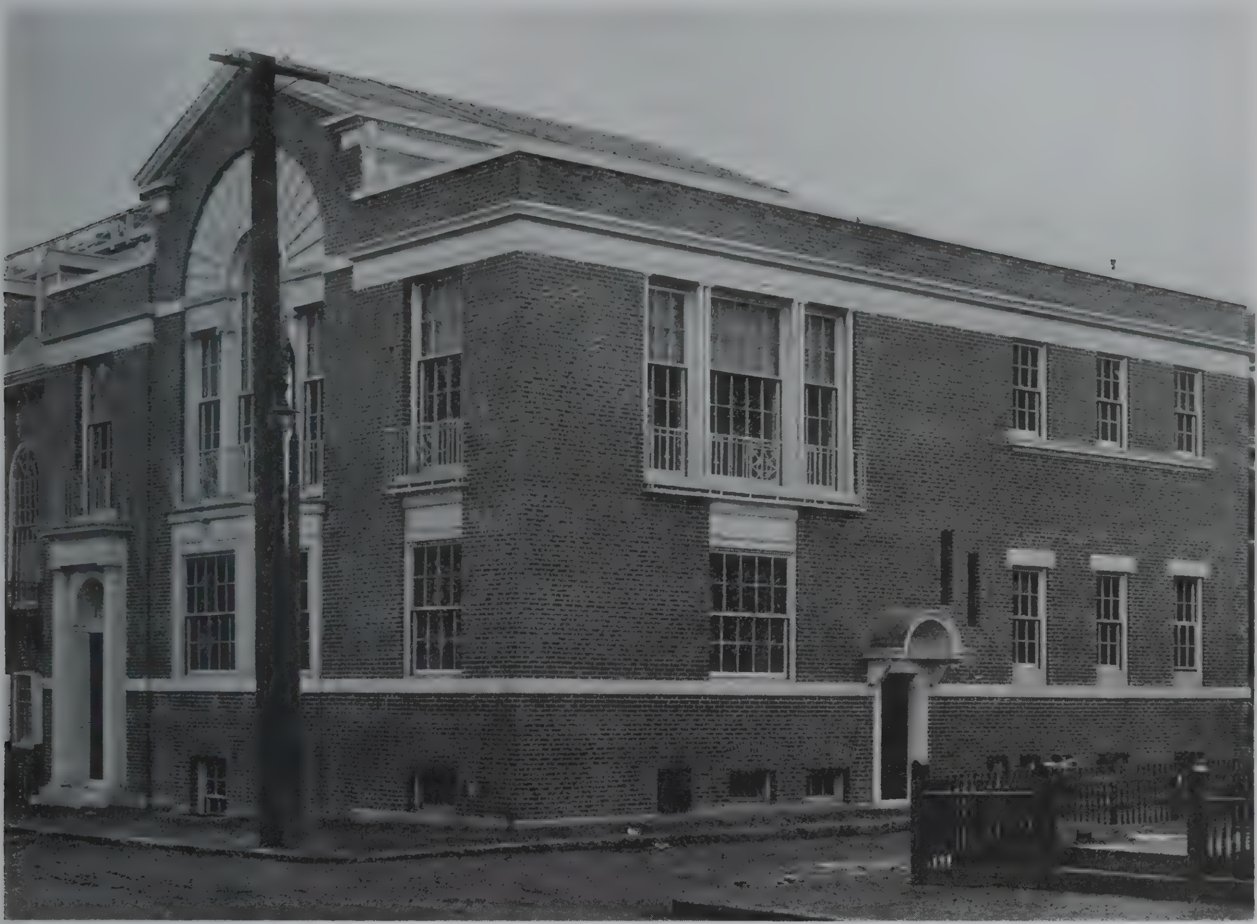
COST PER CUBIC FOOT:
38 cents.

fraternity house. In fact, the entire design and treatment of this fraternity building is carried out in a rather simple adaptation of the English Tudor style.

The second floor, which occupies only the arms and top of the cross, contains a balcony overlooking the large living room, a small library, four bedrooms and eight studies. This arrangement calls for the use of two beds in each bedroom and an individual study for each man. No individual bathrooms are connected with the bedrooms or studies. Instead, one large dressing and toilet room is provided for the use of this entire floor. The plan of the third floor is similar to that of the second, providing four bedrooms and eight studies. The height of the building as well as the design and size of the living room wing fails to give any suggestion of a semi-domestic character to the structure; but as an example of the use of the Tudor style, it is eminently successful.

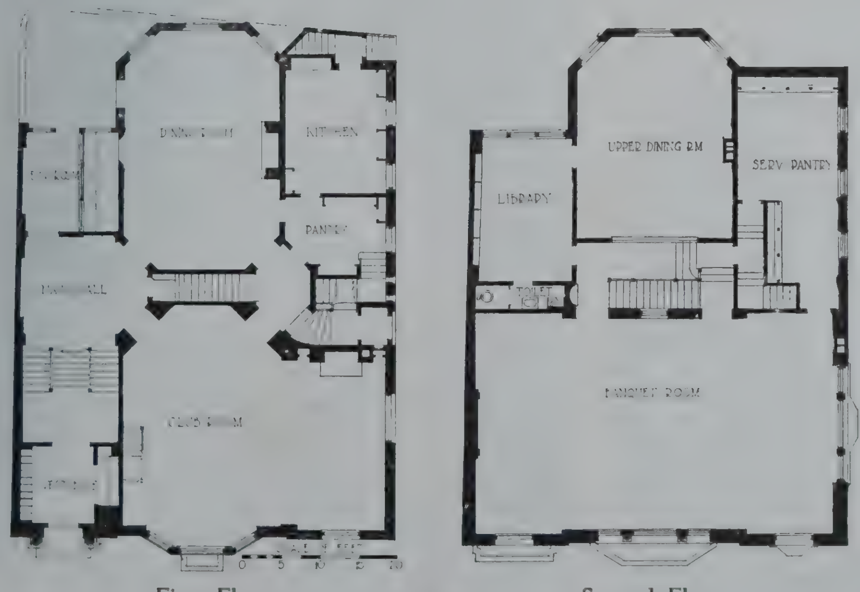


Two-Story Living Room Wing



IROQUOIS CLUB, HARVARD UNIVERSITY, CAMBRIDGE, MASS.
WARREN & WETMORE, ARCHITECTS

ADJACENT to the S. K. Club, on one of the narrow streets in Cambridge, is located the building of the Iroquois Club. Unlike the building of the S. K. Club, this design shows a studied use of the details of the Adam period of the English Renaissance. Here again, the size and arrangement of the windows of the two street facades indicate quite clearly the arrangement and importance of the rooms within. The entrance door, located at the street level, leads into a marble paved vestibule and stair hall. Here a double stairway leads up to the main floor, while below five steps connect with the basement, where are located a coat room, boiler room, and at the rear a storage cellar, laundry, large toilet room and two servants' bedrooms and bath. On the main floor are located a large living room and a spacious, two-story dining room. At the rear of this floor, adjacent to the dining room, is a small bar, reminiscent of pre-prohibition days, as this



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—76

Iroquois Club House, Harvard University, Cambridge, Mass.; Warren & Wetmore, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and frame.

EXTERIOR MATERIALS:
Brick; wood and marble trim.

ROOF:
Slate.

WINDOWS:
Wood frame and sash.

FLOORS:
Hardwood; main rooms, teakwood in random widths.

HEATING:
Hot water.

PLUMBING:
Brass water lines.

ELECTRICAL EQUIPMENT:
Iron conduit for lighting.

INTERIOR MILL WORK:
Oak.

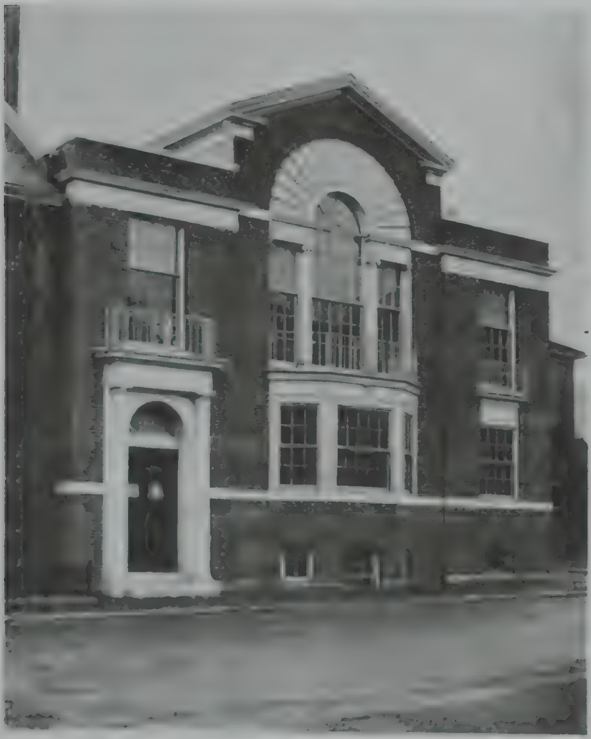
INTERIOR WALL FINISH:
Painted.

DECORATIVE TREATMENT:
Oak and plaster in main rooms.

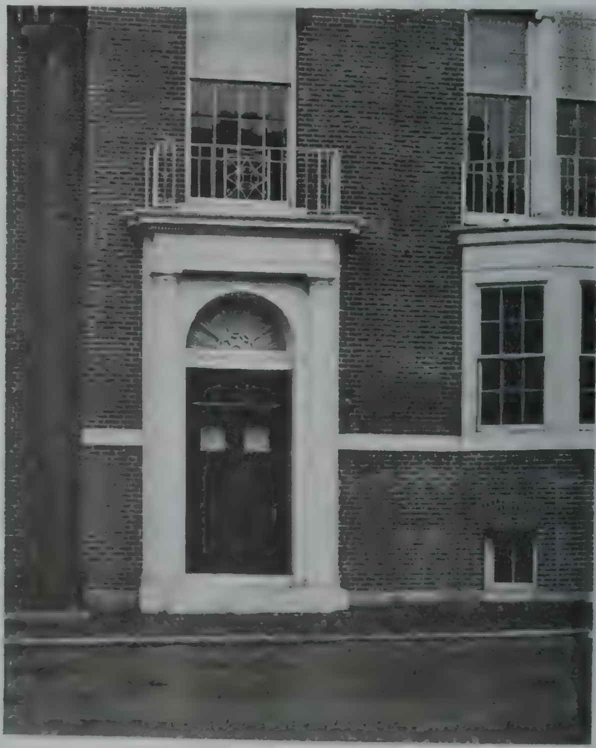
YEAR OF COMPLETION:
1917.

club house was built in 1916. The serving pantry and kitchen are located at the side of the dining room opposite the bar. A small center hall between the living room and dining room gives access to a stairway leading to the second floor. Here a banquet room, 45 feet long by 27 feet wide occupies the entire front of this floor. At the rear is a library, a gallery overlooking the two-story dining room, and a large serving pantry, which is arranged as an auxiliary kitchen. These kitchens are completely equipped.

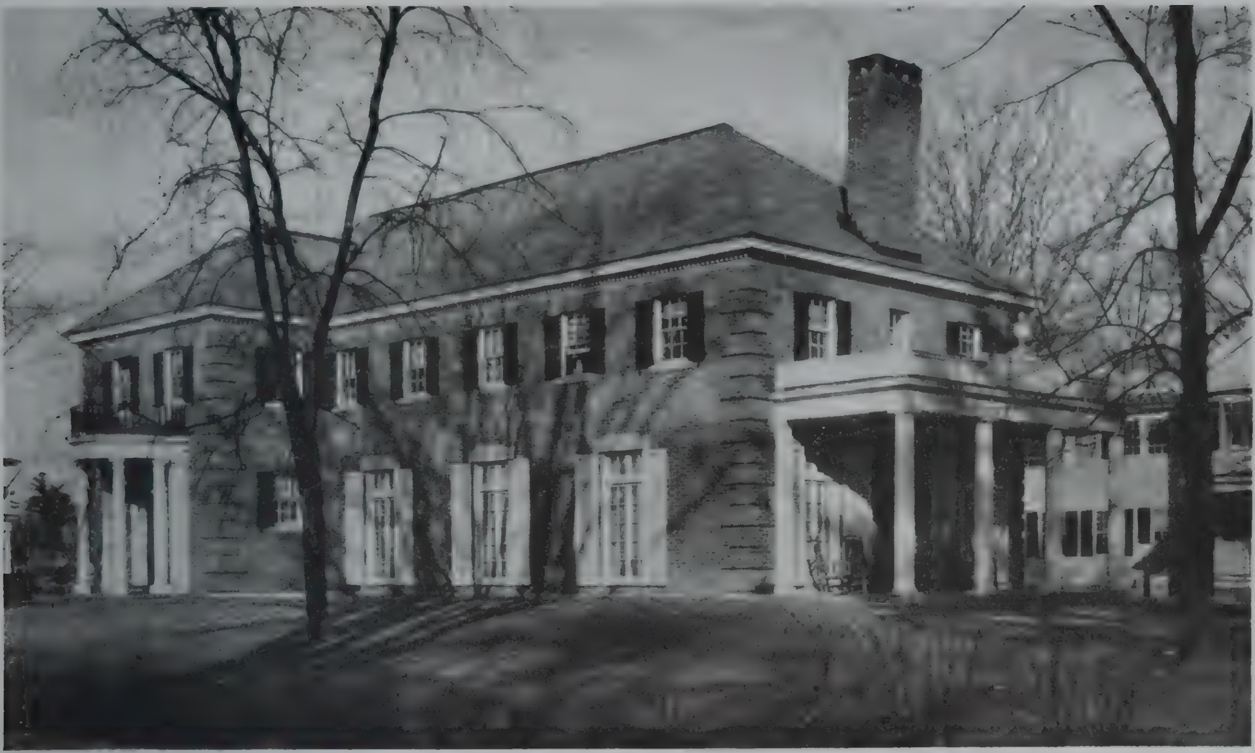
The plan of this Iroquois Club House is typical of this type of undergraduate club buildings to be found in universities where clubs rather than fraternities exist. Unlike fraternity houses, most college club houses provide no sleeping quarters for their members. This characteristic is particularly true of the club houses at Harvard. While a club inevitably lacks something of the domestic atmosphere of a fraternity house, in which the members actually live, the absence of bedrooms, baths, etc., makes possible a dignified, somewhat formal treatment of living rooms, dining rooms, and other rooms of a general nature. So in this instance, since owing to the nature of the building it has been possible to give it a highly architectural form of English Renaissance treatment, with windows of a scale and character which accord well with the style. The building presents a distinguished aspect.



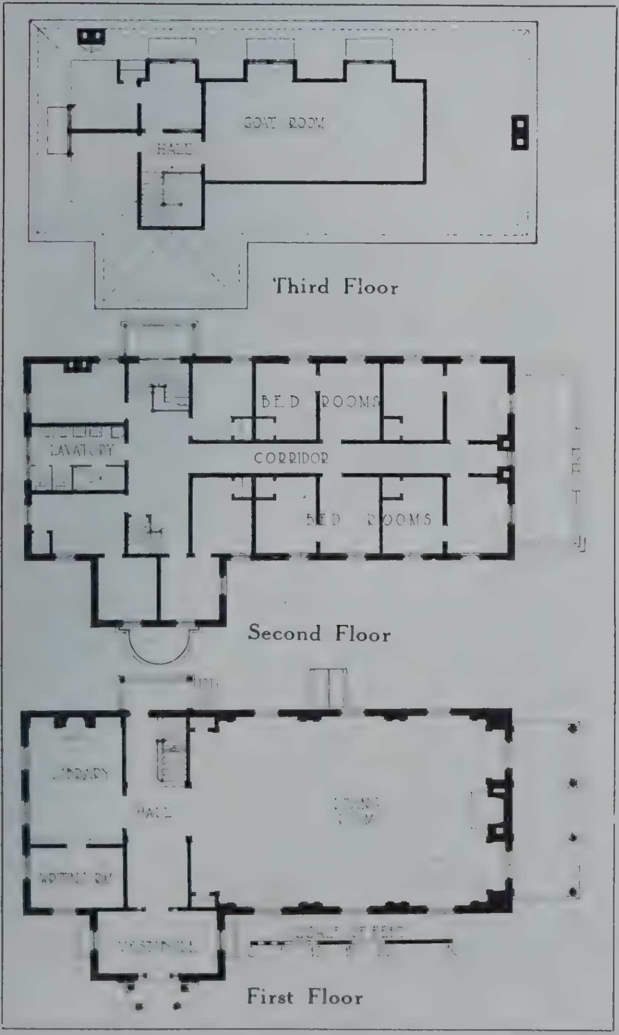
Front Elevation



Detail of Entrance



KAPPA KAPPA KAPPA HOUSE, DARTMOUTH COLLEGE, N. H.
LARSON & WELLS, ARCHITECTS



APPROPRIATE to the New England antecedents and background of this New Hampshire college, the Colonial style of architecture has been pleasingly employed as inspiration for the design and details of the Kappa Kappa Kappa House at Dartmouth. As an example of a small fraternity house, this is one of the best. Two stories in height, built of red brick with brick corner quoins, the white painted porches, small paned windows, trim and simple cornice, make a pleasing impression. The front elevation shows a semi-circular entrance porch, employing the Corinthian order, located in the center of the projecting bay at one end of the facade. Three long casement windows with white painted shutters indicate the location of the large living and dining room, which is the heart of the house. At the end of this living room, a covered porch gives a decorative note, which adds much to the exterior design of the building. The use of simple Tuscan columns with sturdy entablature and roof parapet is so pleasing and successful that it is rather to be regretted that this same order was not employed for the semi-circular entrance porch, which seems too delicate and refined in character for use at the entrance to an undergraduate fraternity house. The simple and successful dignity of the exterior of this building is further maintained by the unbroken slopes of the hip roof on the front elevation. In plan, the first floor shows, besides the large living room, a stair hall extending through the entire building, a library and a writing room. On the second floor are located 14 bedrooms of equal size, and a general toilet and washroom, placed at one end of the long corridor.

FORUM SPECIFICATION AND DATA SHEET—77

Kappa Kappa Kappa House, Dartmouth College, Hanover, N. H.; Larson & Wells, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick and hollow tile; wood stud partitions and floor joists; slow-burning.

EXTERIOR MATERIALS:
Brick and hollow tile.

ROOF:
Slate.

WINDOWS:
Wood sash and casements; double-hung.

FLOORS:
Basement and toilets, composition; first floor, plain oak; elsewhere, soft pine.

HEATING:
Steam.

PLUMBING:
Cast iron and brass piping; enameled fixtures.

ELECTRICAL EQUIPMENT:
Lighting and cooking connections.

INTERIOR MILL WORK:
Basement in oak; first floor, whitewood; elsewhere, hard pine.

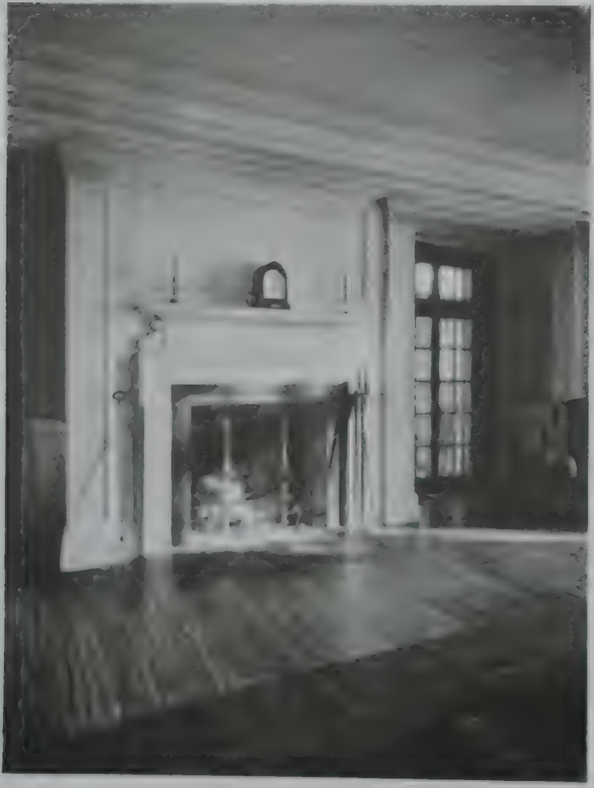
INTERIOR WALL FINISH:
Painted plaster.

APPROXIMATE CUBIC FOOTAGE:
93,800.

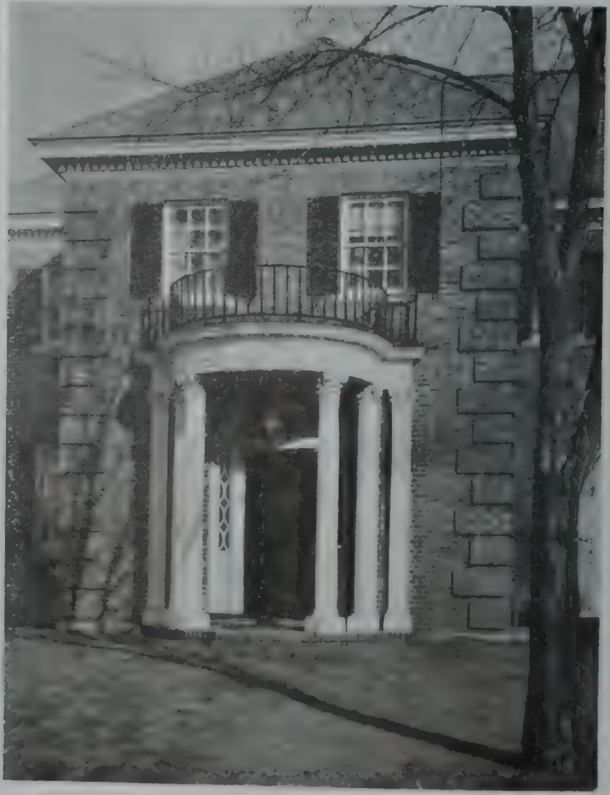
COST PER CUBIC FOOT:
40 cents.

DATE OF COMPLETION:
June, 1923.

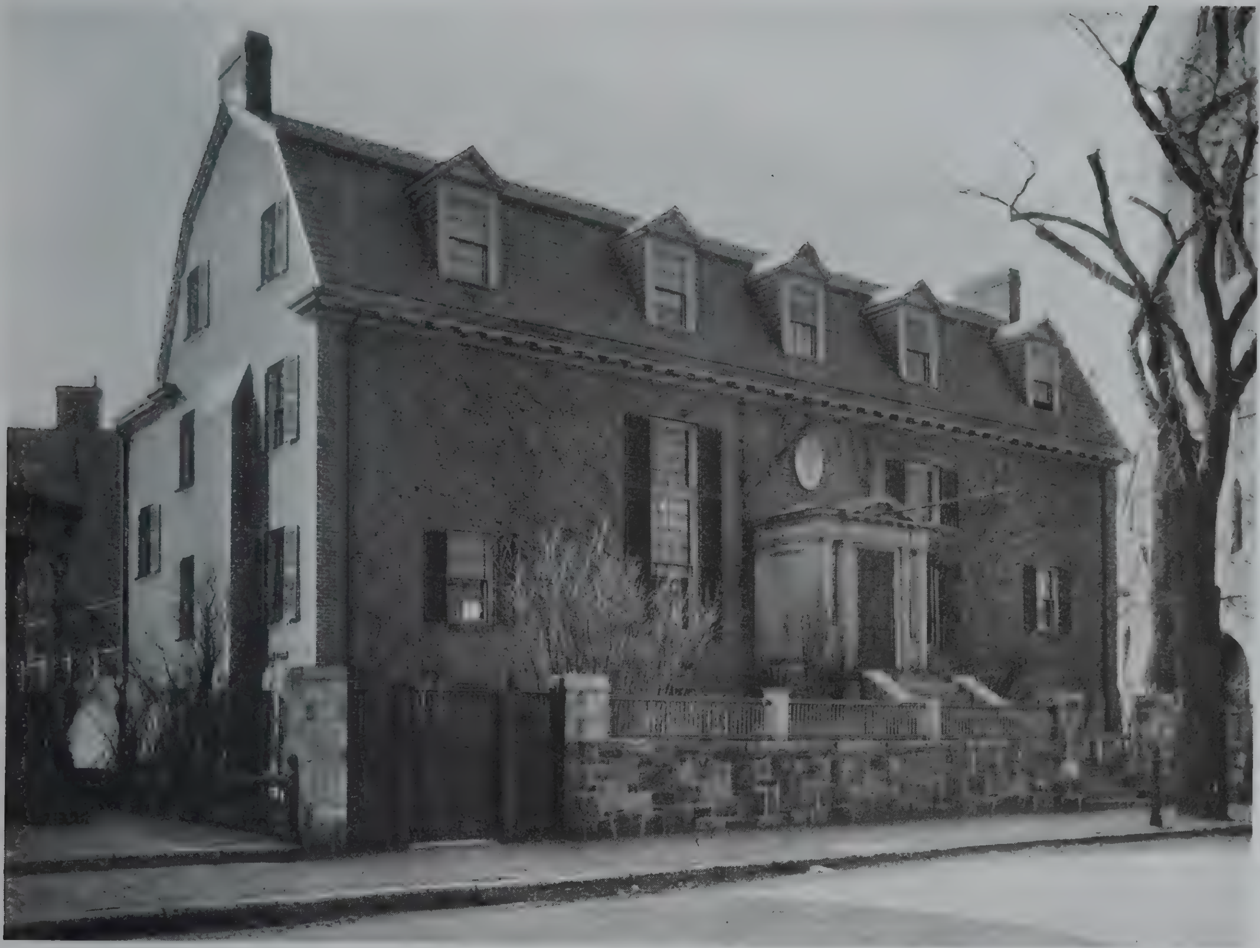
The carefully designed, white painted wooden trim,—columns, cornices and shutters,—of the exterior suggest that equal thought and care have been devoted to designing the trim for the interior. This has been done, and the rather late Colonial style in which the exterior of this fraternity house has been designed is carried out within by mantels, pilasters, wainscots and the newels and balusters of the stairway, which are true to the forms the eighteenth century American builders were using, following the details invented or adapted by the architects of England. The grace and delicacy with which the interiors of this building have been developed may be studied in the illustration at the lower left hand corner of this page. Here, at one end of the great living room are two deep alcoves wherein windows are set. Between the two is placed the chimneypiece, with a recessed panel in lieu of an overmantel. This chimneypiece is flanked by pilasters which support the heavy cornice extending around the room. The interior well fulfills the promise of the graceful, polished exterior of this highly satisfying building.



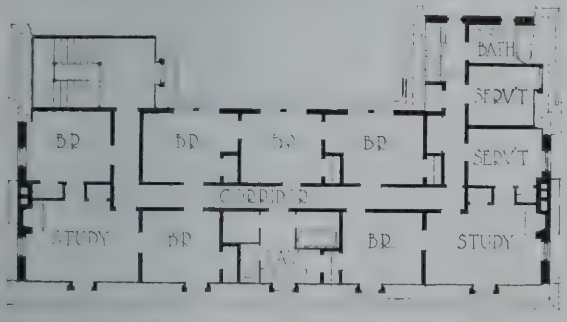
Living Room



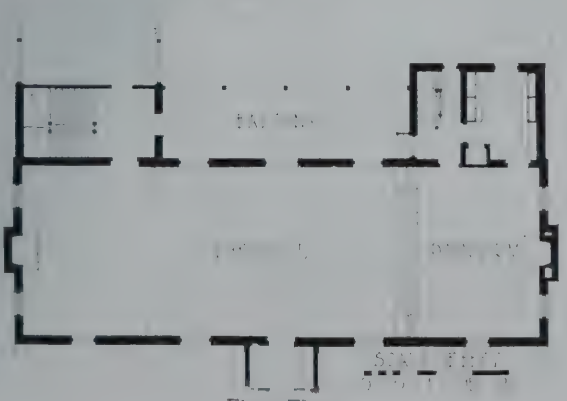
Main Entrance



D. U. CLUB, HARVARD UNIVERSITY, CAMBRIDGE, MASS.
R. CLIPSTON STURGIS, ARCHITECT



Second Floor



First Floor

ANOTHER of the interesting club house designs found in Cambridge, Mass., is that of the D. U. Club, which, although built ten years ago, ranks as one of the most unique and interesting examples of small club house architecture. The front elevation, of balanced design, is quite unusual. A long flight of stone steps leads up to a projecting entrance vestibule, Colonial in character and detail. This vestibule is balanced at the sides by unusually tall windows, which indicate the two-story living room within. A simple cornice supports the overhang of a well proportioned gambrel roof, the lower slope of which is broken by five dormer windows on each side of the house. These dormers, combined with the added height provided by the gambrel roof, make possible several bedrooms for the accommodation of visiting graduate members of the Club on the upper floor. The white painted trim and window frames successfully offset and contrast with the red Harvard brick of the walls. The Colonial effect is still further heightened by the use of white painted wooden gates and fence in front of the house. The fence is low and surmounts a 4-foot stone wall.

The locating of the building itself, some 15 feet back of the sidewalk line, and at an elevation of nearly 10 feet above the street, provides an atmos-

FORUM SPECIFICATION AND DATA SHEET—78

D. U. Club, Cambridge, Mass.; R. Clipston Sturgis, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Second-class or slow-burning.

EXTERIOR MATERIALS:
Brick.

ROOF:
Slate.

WINDOWS:
Wood sash and frame, double-hung.

FLOORS:
Oak.

HEATING:
Steam.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Plain standing finish; ornamental screens in great hall.

INTERIOR WALL FINISH:
Plaster and wood.

DECORATIVE TREATMENT:
Painted walls; stained woodwork.

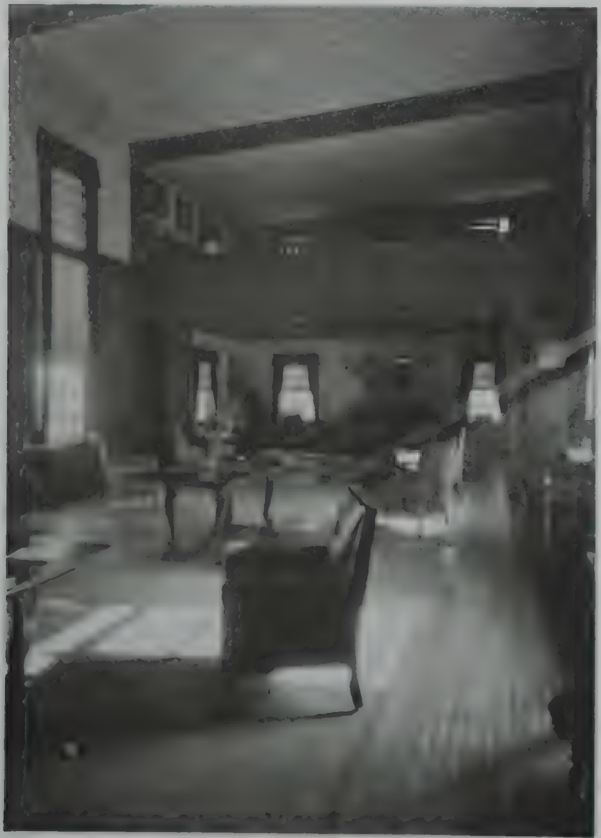
APPROXIMATE CUBIC FOOTAGF:
140,000.

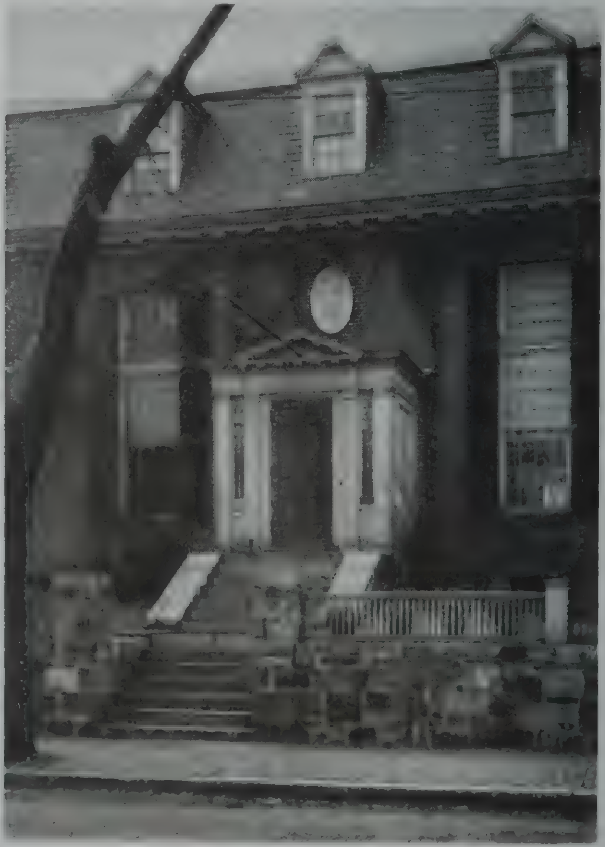
COST PER CUBIC FOOT:
22½ cents.

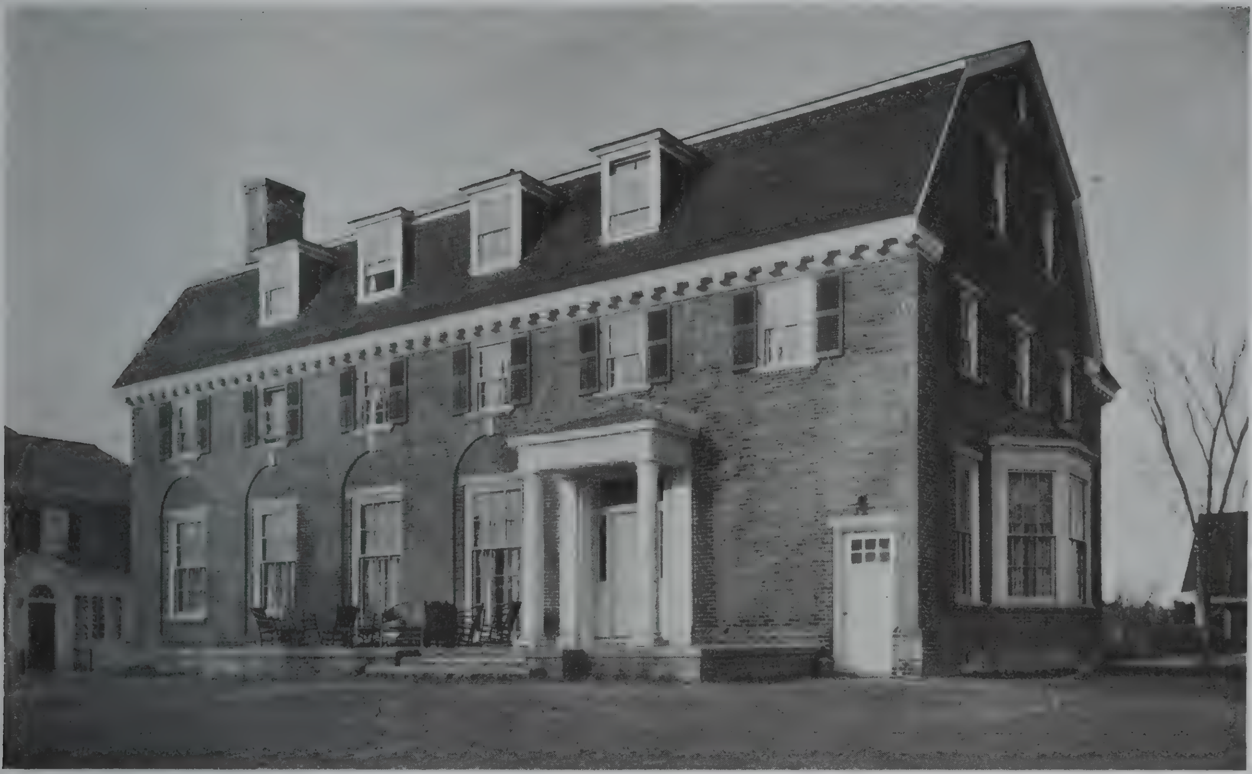
YEAR OF COMPLETION:
1915.

phere of seclusion and retirement, particularly desirable in a club of this sort. The entire main floor of this club house is one long room, at one end of which three steps lead to a higher level, which is used as the dining room of the house. Above the dining room end and also above a space of similar character at the opposite end of the building is an open gallery with high paneled parapet, a staircase and a serving room as well as a long open balcony, which is used in the warm months of the year for out of door dining.

The character of the structure as a club house rather than a fraternity building, which is likely to contain bedrooms, makes possible an interior which is both interesting and highly architectural. The exterior agrees well with that of the older structures in the Harvard Yard, not far away, and aids in suggesting the connection which a college club might well sustain to the institution to which its members belong. Even in a town containing many notable buildings, none more distinguished is to be found.

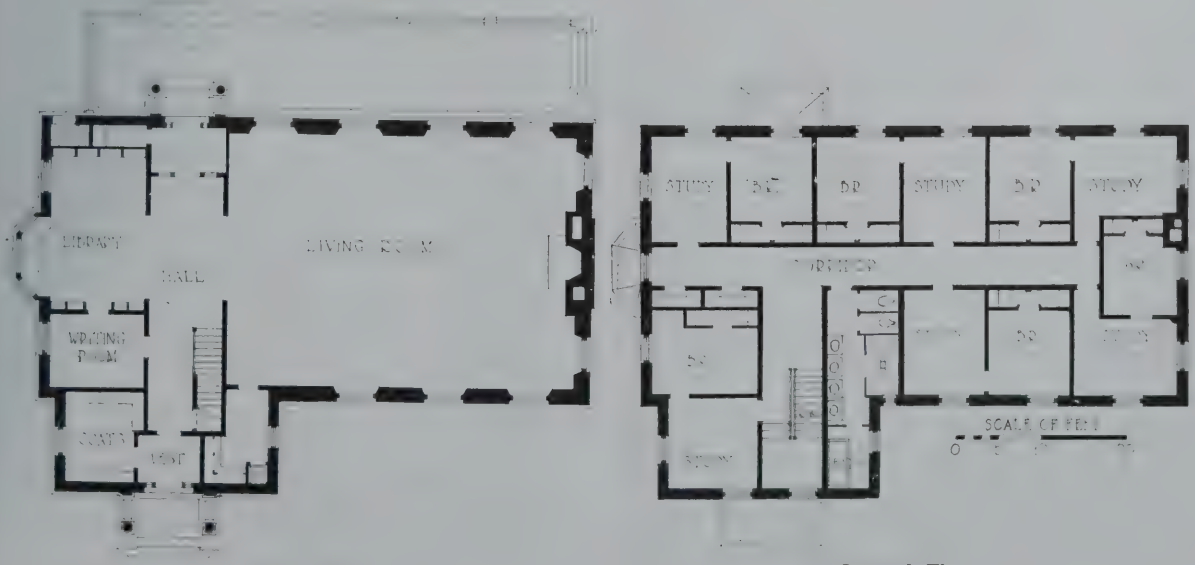

The Hall


Entrance



DELTA TAU DELTA HOUSE, DARTMOUTH COLLEGE, HANOVER, N. H.
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS

ANOTHER of the recently completed fraternity houses at Dartmouth is that of Delta Tau Delta. This simple brick building with gambrel roof follows the Colonial style as regards the exterior details. Both the entrance porch on the front of the house with its simple entablature and low pediment, and the entrance at the rear of the main hall, which opens onto the living porch, are carried out in the Tuscan style of Classic architecture. The entrance porch on the front of the building is located in the center of a bay which projects about 11 feet from the main building, creating a pleasing break in the length of this facade. At the right of this entrance motif three tall rectangular windows set in brick arched openings add a decorative note to the front facade of the building. A carefully proportioned window on the second floor is placed on the axis of each of the wall arches of the first story. This same deco-



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET—79

Delta Tau Delta House, Dartmouth College, Hanover, N. H.; Blackall, Clapp & Whittemore, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Non-fireproof.

EXTERIOR MATERIALS:
Brick with stone and wood trim.

ROOF:
Asphalt shingles.

WINDOWS:
Wood frame and sash, double-hung.

FLOORS:
Oak and hard pine.

HEATING:
Steam.

PLUMBING:
Enameled iron.

ELECTRIC EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood painted, and cypress stained.

INTERIOR WALL FINISH:
Rough-cast plaster.

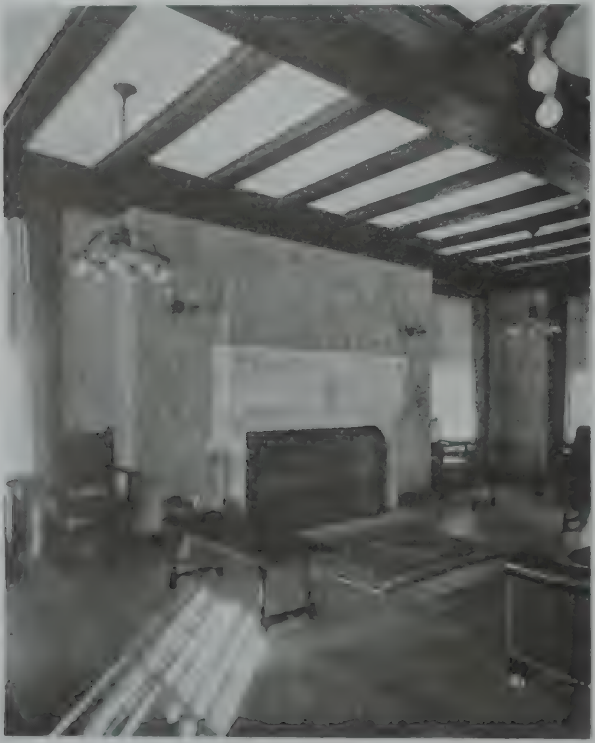
DECORATIVE TREATMENT:
Simple English style; white wood painted, and cypress stained.

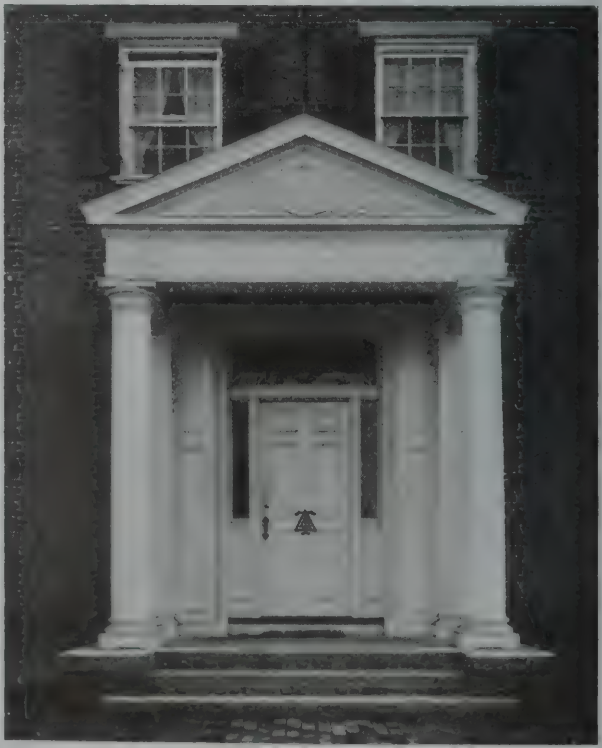
APPROXIMATE CUBIC FOOTAGE:
100,000.

COST PER CUBIC FOOT:
46½ cents.

DATE OF COMPLETION:
July, 1925.

rative treatment of filled-in brick arches with small windows above is repeated on the rear or garden elevation of the building. Carefully spaced, well proportioned dormers break the slope of the roof above the windows in the wall below, giving a homelike and comfortable aspect to the house. The plan is simple and direct. Rectangular in shape, the first floor provides a long center hall extending through the building. This center hall opens into a spacious living room on one side and on the other into a small library with a bay window. Other rooms on this floor are a coat room and serving room, located on either side of the entrance vestibule. This serving room permits the living room to be used also as a dining room. At the rear of the first floor, a long, open, brick-paved terrace is used as an outdoor living room during the warmer months of the year. On the second floor are located six bedrooms and six studies, as well as a large washroom with showers and toilets. The third floor also contains bedrooms and studies, three of each, with a common washroom. Part of this floor is occupied by a room arranged for fraternity functions and ceremonies. Perhaps the most notable single detail of the exterior of the building is the excellent placing of the main floor windows in arched recesses, a means of securing character.


Living Room

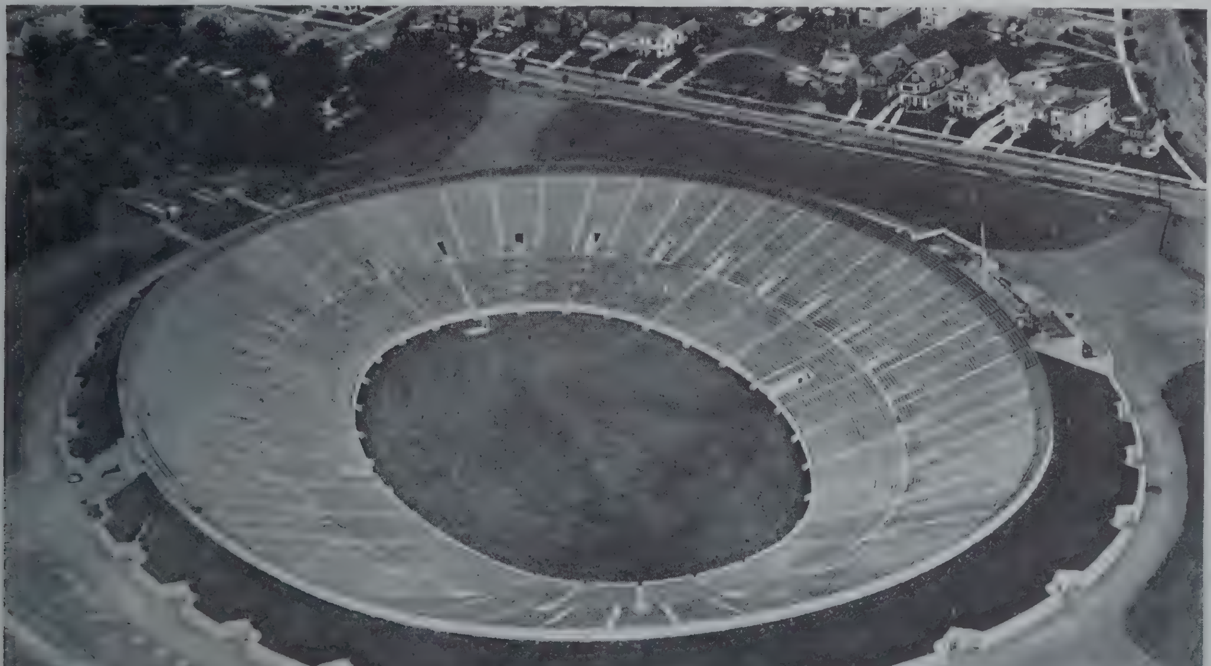

Entrance

The Designing and Planning of Stadiums

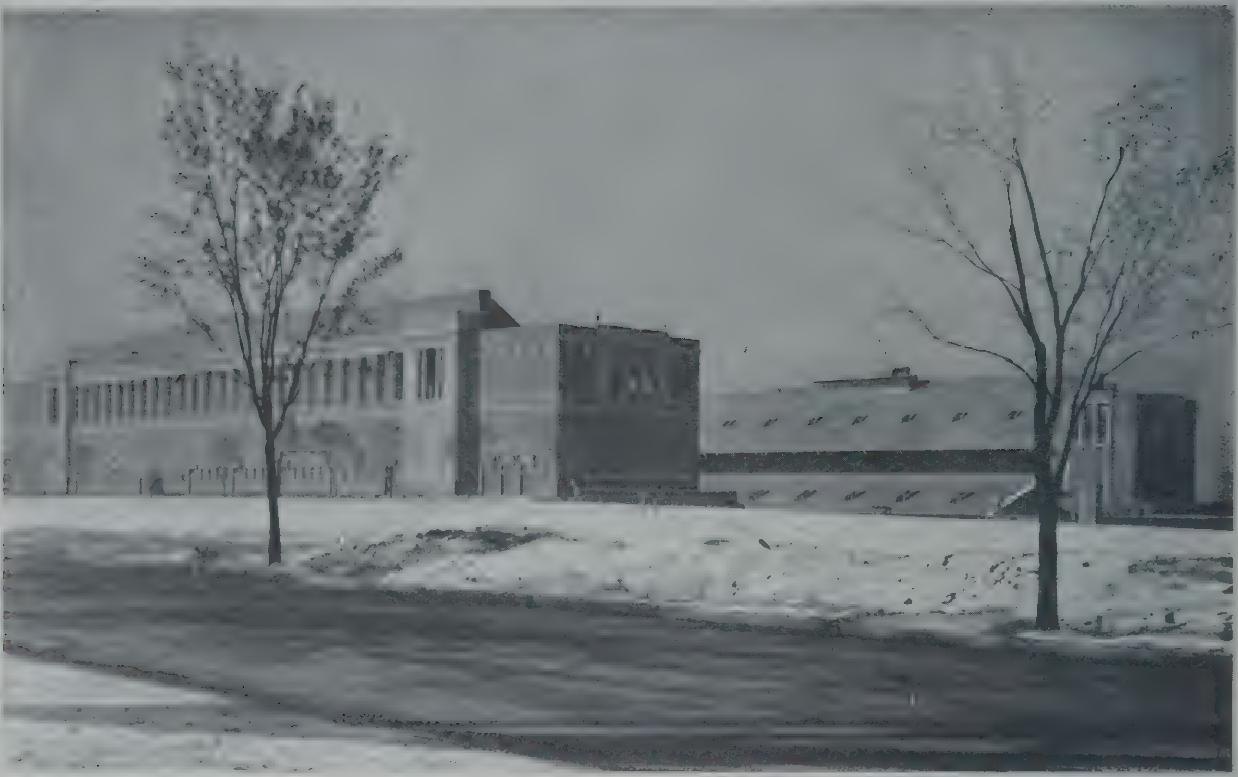
By MARY A. ROLFE

IN a paper read by Gaven Hadden, C. E., before the American Society of Civil Engineers last May, Mr. Hadden drew attention to the fact that stadiums should be built primarily for the games to be played within their enclosures. The Greek stadium, which dates from 330 B. C. and was built in the shape of a long U, was intended to provide seats for the witnessing of foot races. According to the custom of that day these races were run back and forth on a straight path until the required distance had been covered. The arena enclosed would therefore not be of the right shape or size for a stadium built for spectators of modern foot races which are run on closed tracks; much less would it be suitable for baseball or football. The Roman circus, built for the witnessing of chariot races, followed closely the Greek shape, but added a high wall surrounding the arena for the protection of spectators and a central wall dividing the first course from the return, neither of which is needed in our modern stadiums. In spite of this fact, certain stadiums have walls built around the arenas, thus cutting down the possible number of good seats,—seats within a distance from the playing field which is convenient for human eyes, since every 10 feet away from the field adds to the strain on the eyes. This enclosing wall also makes necessary the pitching of the deck to a greater slope, since otherwise the spectators would have the near part of the field cut off from view by the seated height of those in front of them added to the height of the wall. The only other alternative is the widening of the field to make up for the space so cut off. This again reduces the number of good seats possible within the visual limit which is found convenient.

The amphitheater, built for the purpose of witnessing wild animal and gladiatorial shows, was oval or elliptical. The Yale Bowl follows the lines of the amphitheater, although the shows for which the amphitheater was designed were of a character that made any seat on any side as good as any other seat, whereas football, which is the only game played in the Yale Bowl, is played on a rectangular field. Thus the shape of the stadium makes impossible for the spectators any of the seats which are usually considered the choice seats at a football game,—the close-in, central, side seats. There are no such seats to be had when the stadium follows the lines of the Roman amphitheater. Furthermore, the enclosing wall around the arena, made necessary in the amphitheater for the protection of the spectators and for the retention of water when a sea fight was to be staged, is not needed today, even though the design



Airplane View, Yale Bowl, New Haven
Designed by Charles A. Ferry, C. E.; Architectural Details by Donn Barber



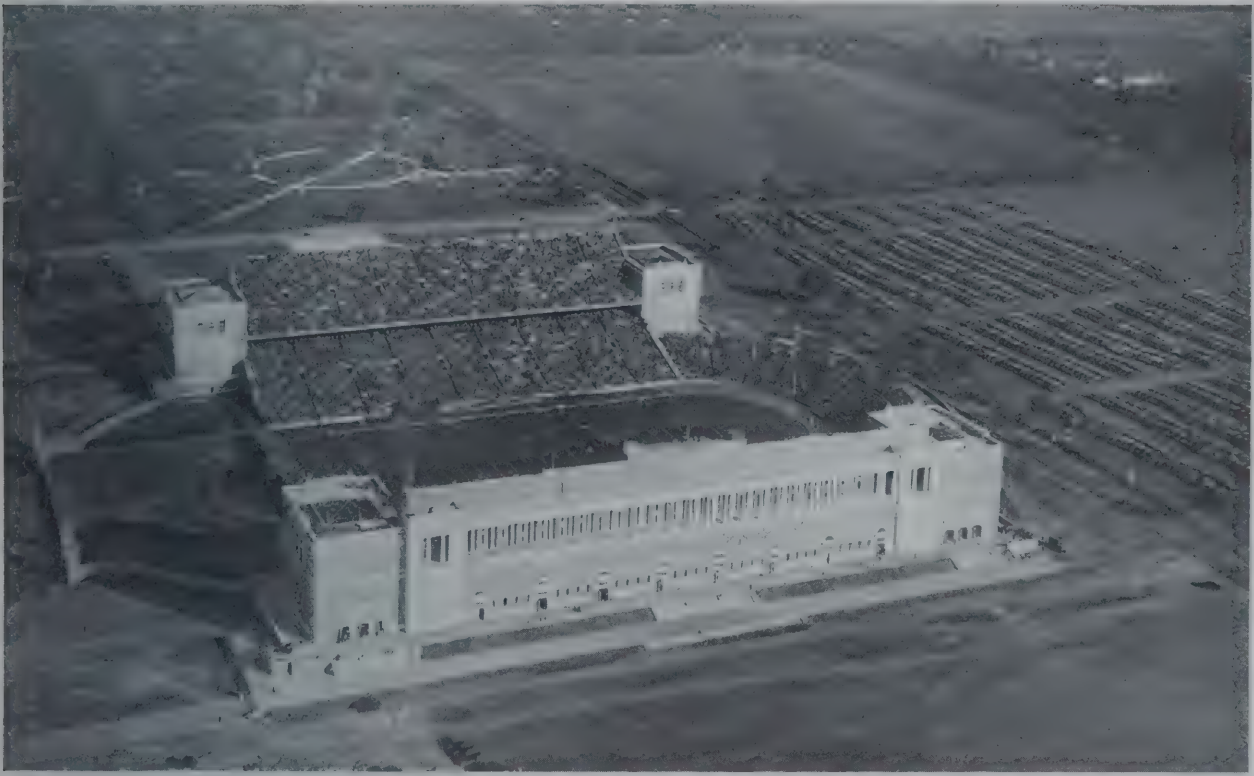
Stadium, University of Illinois, Urbana, Ill.
Holabird & Roche, Architects

of the amphitheater is retained. Fortunately, the demands of the early baseball games indicated very definitely the shape needed for baseball stadiums, so that the arrangement of the seats in permanent baseball parks has never yielded to that of the ancient stadium. Mr. Hadden showed a very interesting plan for using partially stationary and partially movable (although permanent) seats, so that the same stadium could, by the swinging of the decks of seats on an axis, be made to serve the needs of both baseball and football. This is perhaps the best modern example of the movement away from the old stadium forms and toward forms adapted to the game for which the stadium is probably intended to be used.

Detail, Stadium, University of Illinois
Holabird & Roche, Architects

With the exception of the Yale Bowl, every stadium of any importance has been designed for more than one sport. With this purpose in mind, something of the ideal for each game has necessarily been sacrificed. The addition of a running track around the gridiron means a sacrifice of large numbers of choice seats for viewing football, because of the visual limit of convenience. When, however, the stadium is built with a double deck, the added width of the field permits a lower pitch of the upper deck, and hence at Illinois the track was added, the additional deck making up for the loss of good seats due to the width. A small crowd seating itself in order to witness a game of football will form a close mass at the middle of each side and will fill the lower rows of seats, extending back up the bleachers in an inverted fan shape, keeping the distance from the center of the field about equal whether the occupied seats be along the lower tiers or upward. With this natural grouping in mind, the Cornell Crescent was built. It was intended to meet just these conditions.

The first step in breaking away from the traditional type of stadium structure was to widen the U; the second step was to flatten the curved end or ends, thus bringing the form of stadium more

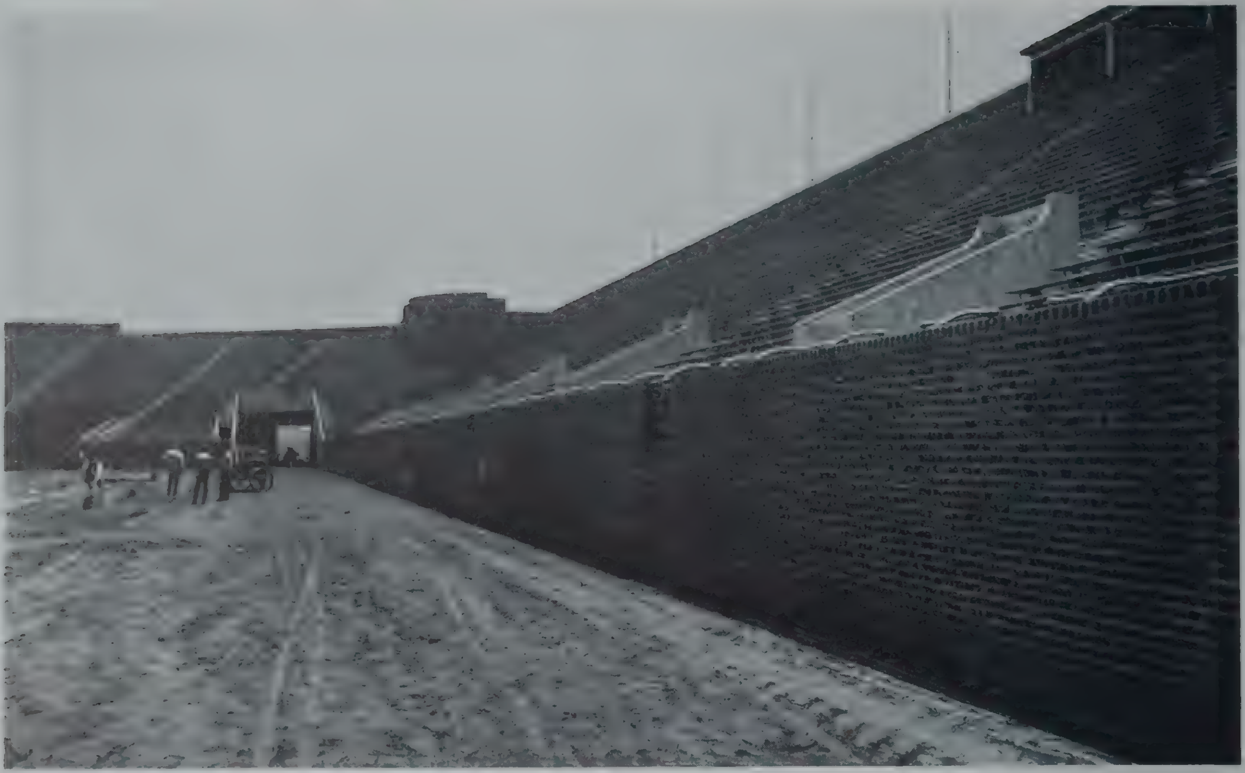


Airplane View, Stadium, University of Illinois, Urbana, Ill.
Holabird & Roche, Architects

nearly in line with the form of the gridiron. A true rectangle would not serve, because the seats in the angle would be very undesirable. The third step in modernizing the plan of the stadium was to forget the ends and to build on the sides only. While recognizing the natural plan of seating arrangement, most of these sidestand buildings have rectangular decks. While the corner seats are not as desirable as are those nearer to the center of the field, they are preferable to end seats, and when the playing is near the goal posts they are as good as any seats anywhere, provided the stands do not extend too far beyond the lines of the goal posts, which they need not do.

So long as the space under the stands is of no value for athletic purposes, the traditional architecture of the Greek and Roman buildings is likely to be retained wherever the embankment type is not used. Only where modern steel beams are used can the space below the seats be made valuable. A long central beam under the lower deck of the Illinois stadium has done away with the need of a supporting row of pillars, making possible two halls 50 feet wide and as long as the stands. These, being free from all obstructions, can be enclosed, heated and used for athletic contests, practice or sports. Open concrete arches of some type will give entrance to such areas. As soon, however, as the space is opened up by the use of steel beams, the design of the exterior must change, because the use of the halls so formed necessitates the walling in of the structure. The Illinois stadium has departed very markedly from the use of the traditional concrete in building these enclosing walls of brick with stone trimmings, and in using an American adaptation of an English type of architecture. The arch is entirely lacking, square-topped entrance doors giving access to great halls from which entrance is made onto the decks. The use of this type of enclosure is the more definitely marked because of the placing of carving,

Detail, Franklin Field Stadium, University of Pennsylvania, Philadelphia
Day & Klauder, Architects



Franklin Field Stadium, University of Pennsylvania, Philadelphia
Day & Klauder, Architects

tablets and plaques as they might be placed on any building, such as an auditorium. The only bit of reminiscent architecture is the use of the Roman Doric columns in the colonnade which occupies the space under the upper deck. It is to be expected that this movement away from the use of the classical types will continue, since it proves advantageous.

Entrance, Memorial Field, Dartmouth College, Hanover, N. H.
Larson & Wells, Architects

In considering the plan of a stadium the points to be considered are: (1) the allotment of land on which to build; (2) the purpose for which the stadium is designed; (2) the seasons when the different sports for which it will be used are played; (4) the approximate sizes of the crowds at different seasons; (5) the direction of the wind and the position of the sun at those times of the year and during the hours of the day when the games will be played; (6) the sources from which the crowds will come, whether local or from the surrounding country or from long distances; (7) approaches necessary to accommodate the crowds; (8) parking spaces necessary for cars; (9) the weight of the crowd when seated, when moving or when standing suddenly; (10) the weight of the material used in construction; (11) the force of the wind, and (12) the safety of the people. All this has to do with "planning for crowds" and each detail is of considerable importance.

The first point will inevitably make a great difference in the plan. Illinois, with 40 acres on which to build, and Pennsylvania with only a narrow strip between two streets, would necessarily use different plans. Illinois could use the space under the decks for athletic purposes, while Pennsylvania was happy to be permitted to extend its decks out over the sidewalks of the streets on either side, forming arcades. Illinois had no limit to the width of deck that necessarily restricted it, while Pennsylvania's sidelines were restricted by the shorter width between the playing field and the outer edges of the arcade. As a consequence, Pennsylvania had to do without some of the best seat locations, owing to these limitations.

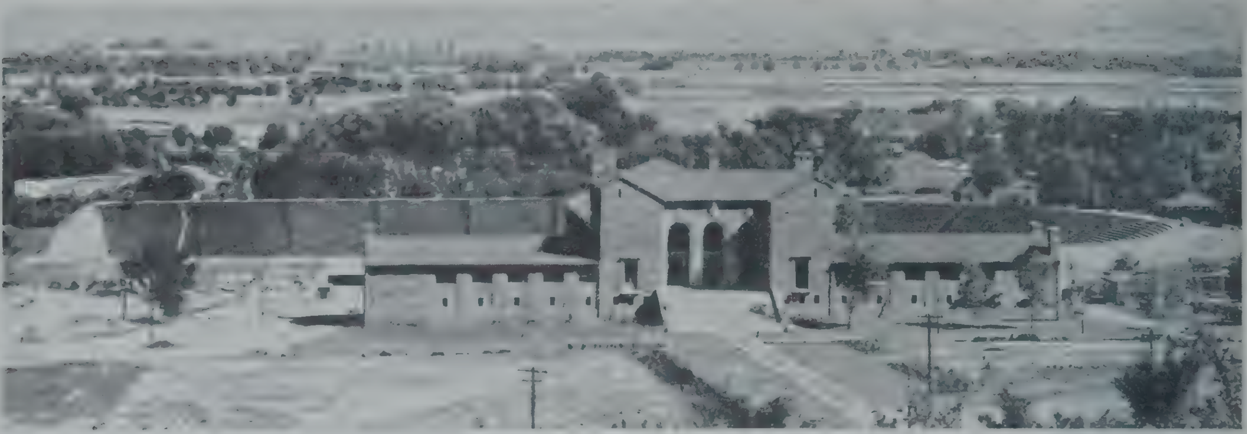
Memorial Field Stadium, Dartmouth College, Hanover, N. H.
Larson & Wells, Architects

The relative importance of the different games which are played during the season limits the choice of sports for which the stadium is primarily intended. The season of the year and the hours of the day bring considerations of sun, heat and shadow, as well as of rain and snow. Prevailing winds become very active factors on open land, not only as retarding agents during the game, but as force constantly bearing against the exterior walls of the building.

The stadium is useful in proportion to the speed with which the crowd can enter it and leave it with comfort and safety. Where (and where is this not true today?) a large part of the crowd comes in for the game and departs soon after the game by train or in automobiles, the planning of the building and its usefulness must depend in part on the terminal facilities of the location, its distance from the places from which crowds come, transportation from the railroads and parking areas for automobiles, as well as wide paved walks leading to the building. Furthermore, the distribution of the crowd outside of the stadium, so that persons going to different tiers and sections of seats will enter by different openings or doors and so that these lines of spectators cannot cross each other in a time of panic, is a prime essential. The safety of the people also brings up the relative merits of steps or ramps, the latter affording by far the safer means of entrance and exit to and from the higher seats. This is especially important where more than one deck is used for the seating.

In planning for the safety of the people after they have entered the structure, the dead load or weight of the material is the first consideration. The all-concrete, the concrete and earth, the earth and wood, the earth, wood and steel, and the concrete, steel and wood structures will all have a different dead weight, and none of these will be the same as the dead weight of the steel, concrete and brick structure. Added to this weight there will be the weight of the

Detail, Memorial Field Stadium, Dartmouth College, Hanover, N. H.
Larson & Wells, Architects

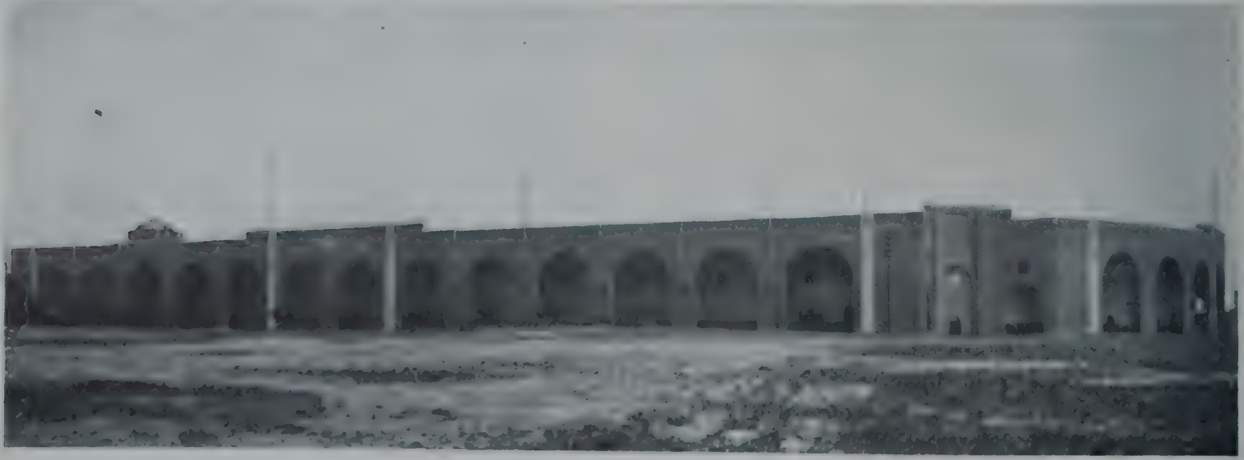


Stadium, University of Colorado, Boulder, Colo.
Day & Klauder, Architects

spectators themselves. This weight will be greatly increased by the movements of the spectators. The seating capacity and weight allowance of the Illinois stadium, for example, allow one person to each 3.2 square feet, the seats being raised wooden seats set on blocks, bolted to the concrete steps, thus giving foot room under each seat for the person in the next seat behind; by figuring the average weight of the spectators as 150 pounds, the weight per square foot resulting was figured as 47 pounds or thereabouts over the area covered by the seats. By figuring in the areas of the aisles, press boxes, etc., this would be decreased to 42 pounds per square foot. By somewhat more than doubling the strength for the support of this weight, the increase of the weight of the crowd when moving was cared for. As people crowd together on leaving, the movement is less, and so the decrease in the live weight due to movement offsets the increase in the weight per square foot due to the crowding of the people together.

Certain movements of the crowds at football games produce horizontal thrusts which must be provided for by bracing. The Illinois stadium was braced to provide for a horizontal load of 20 pounds per square foot of vertical surface in the upper deck. The prevailing winds are such that this bracing also takes care of the weight due to the force of the wind, but as an extra precaution a considerable amount of further bracing was introduced into the structure to care for the wind pressures. The total dead and live weight were added together, and the structure built to sustain twice this load.

Considerations of economy with safety have caused certain stadiums to be built on the embankment plan,—structures without architectural merit. Having replaced the supporting arch with tamped earth, their construction is an engineering rather than an architectural problem. Furthermore, on account of the material used, it is necessary for them to assume the circular or elliptical form, and thereby they lose in convenience what they gain in economy. The exterior of what seems to be the future modern stadium—a series of gymnasiums or field houses with seated roofs arranged around a playing field, adapted to the contests staged there—may be designed to accord with any prevailing campus style of architecture, and the material used may be of any local sort that has been adopted for economy's sake by the university. There is no fixed standard of design or material, nor can there be, once tradition is forgotten.



Franklin Field Stadium, University of Pennsylvania, Philadelphia
Day & Klauder, Architects

Interesting Possibilities of "Efficiency Plan" Dormitories

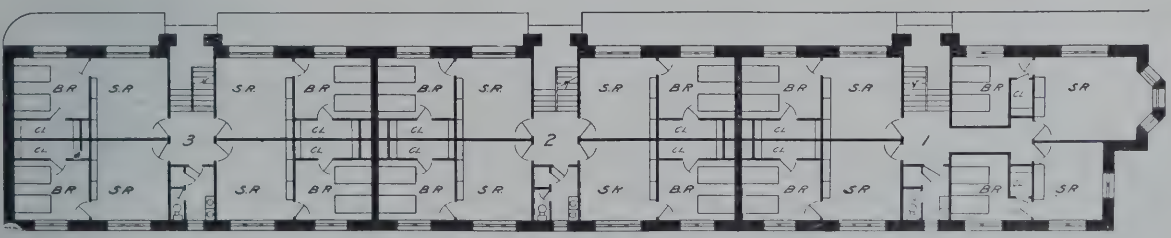
By C. STANLEY TAYLOR

IN various preceding articles and illustrations the problems and methods of planning modern college dormitories have been presented in considerable detail. It is felt, however, that this discussion would not be complete without giving some consideration to the application of the "efficiency planning" idea in the layout of dormitory buildings.

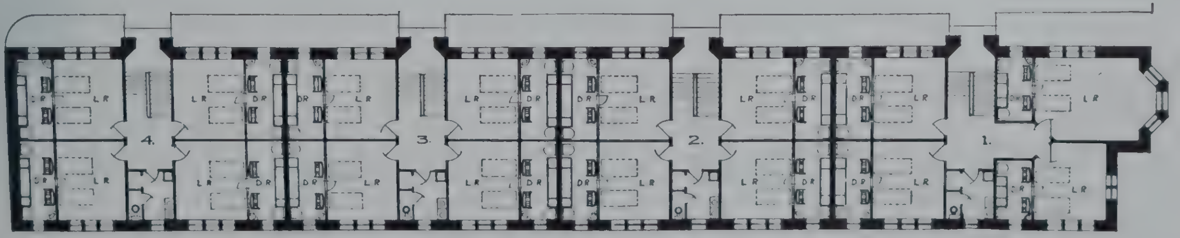
Efficiency planning has already been strongly established in the apartment building field, particularly in the west and Pacific coast districts, and today it is being adopted more and more in the large eastern cities of the United States. This type of planning consists primarily of establishing a double-utility purpose for rooms, which will allow a maximum of service with the smallest possible space requirement. The essentials of efficiency planning are to be found in the equipment, particularly in the use of door beds, making it possible to use a room as a living room in the daytime and a bedroom at night. In the planning of college dormitories this efficiency idea is already beginning to show its influence and to prove the desirability of providing two-room efficiency in one-room space for this type of occupancy, and the advantage is sufficiently obvious, so that the various factors need not be described in detail.

In order to facilitate an analysis of this method of planning as compared to the usual method, there are shown here two plans having exactly the same perimeters. The first plan shows a typical dormitory layout which has been selected from a recently constructed building in the middle west. This layout provides 12 two-room apartments, each consisting of a bedroom and sitting room, with a bathroom serving each four apartments. The second plan shows the identical perimeter worked out under the system of efficiency planning by providing 16 apartments, having the efficiency of two rooms each, but allowing for the housing of four or eight more students on the same floor and still retaining the same ratio of bathrooms to room occupancy. In the efficiency plan shown here the sitting room serves as a bedroom at night in the manner illustrated on the next page, while ample dressing rooms with chiffoniers for each occupant are provided. On the next page is illustrated the new dormitory building of the Chicago Theological Seminary, of which H. H. Riddle was the architect. Here the efficiency idea is carried throughout the plan, but dressing rooms are not provided, the beds being concealed in large closets during the daytime. The illustrations of a typical room indicate that this method of planning provides an attractive living room during the daytime and a comfortable bedroom for two persons at night, thus making possible the doing of double duty by the room.

It is quite probable that use of this type of planning will increase considerably during the next few years, since it represents not only conservation in the amount of building space provided but lowers the cost of housing for students from the points of view of both the college administration and the students.



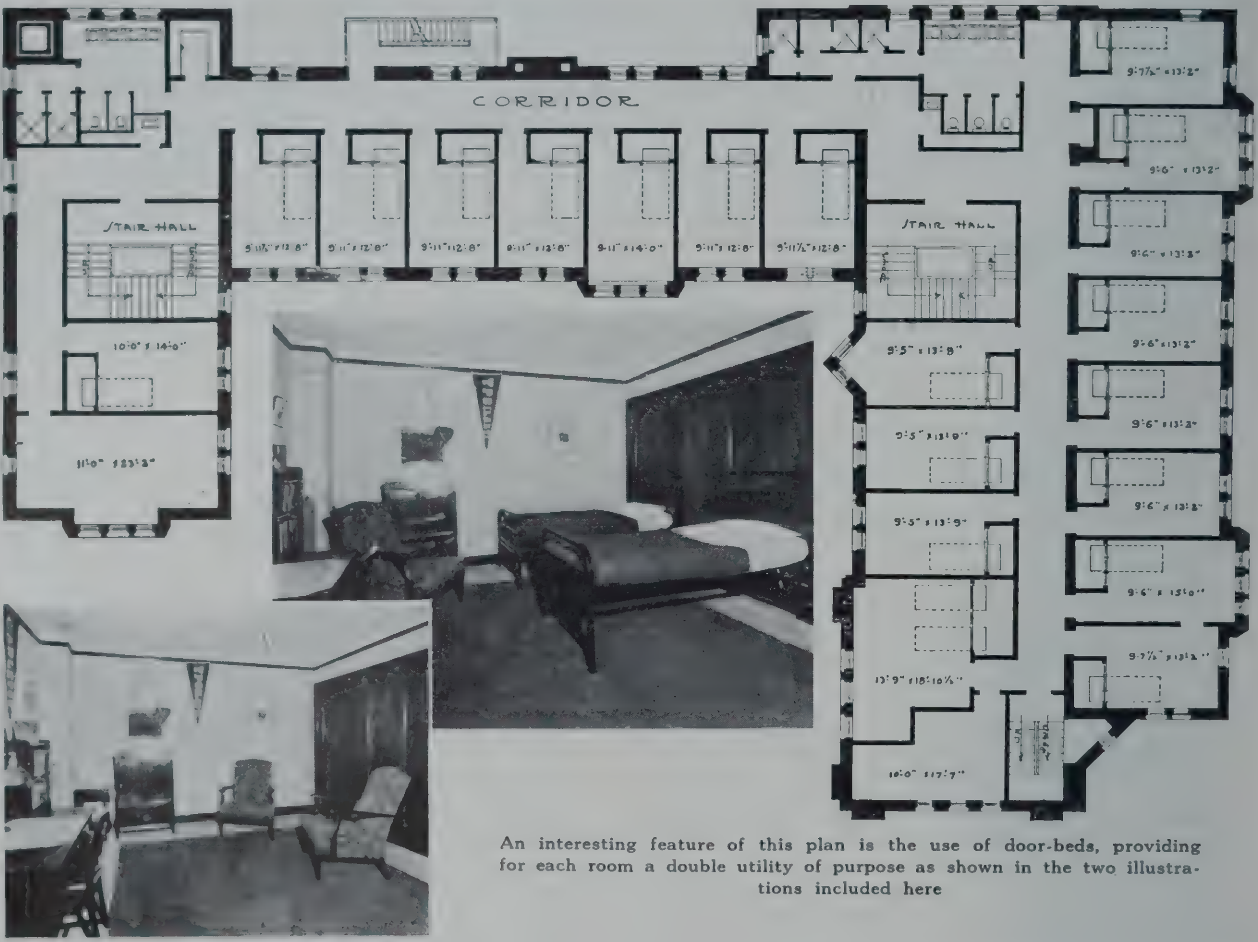
Typical Dormitory Layout Providing 12 Two-Room Apartments



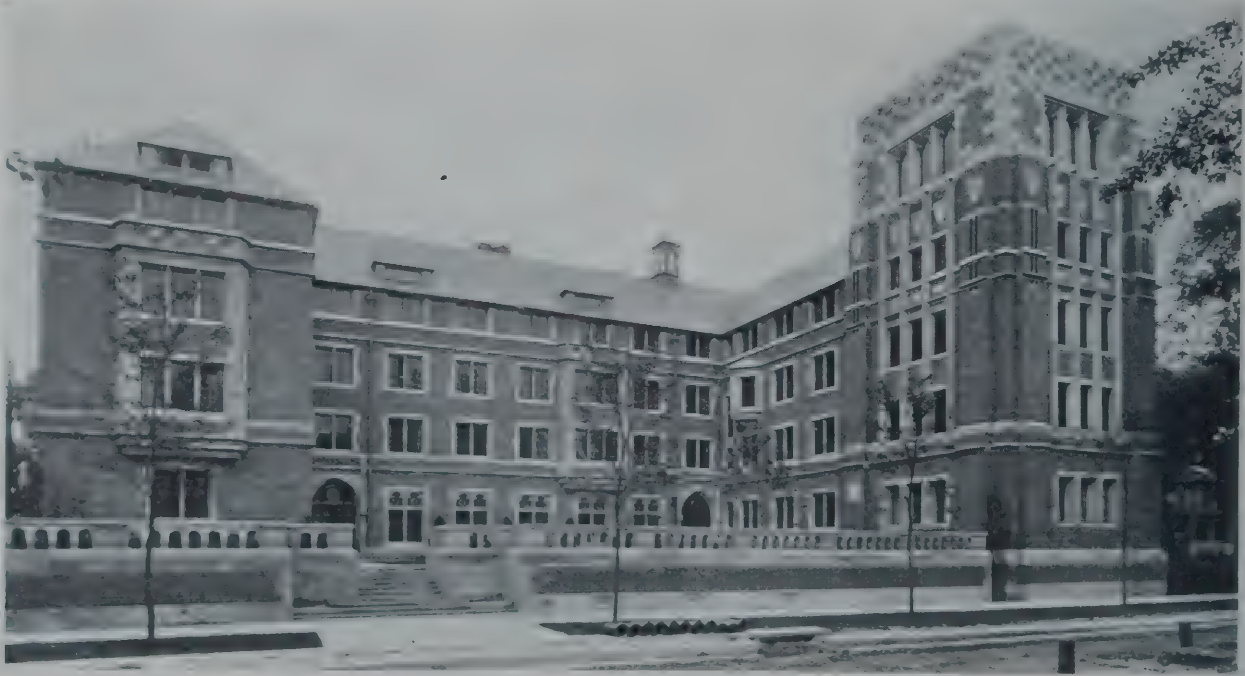
Same Perimeter Laid Out to Provide 16 Apartments of Two-Room Efficiency

"Efficiency" Dormitory of the Chicago Theological Seminary

H. H. RIDDLE, Architect



An interesting feature of this plan is the use of door-beds, providing for each room a double utility of purpose as shown in the two illustrations included here



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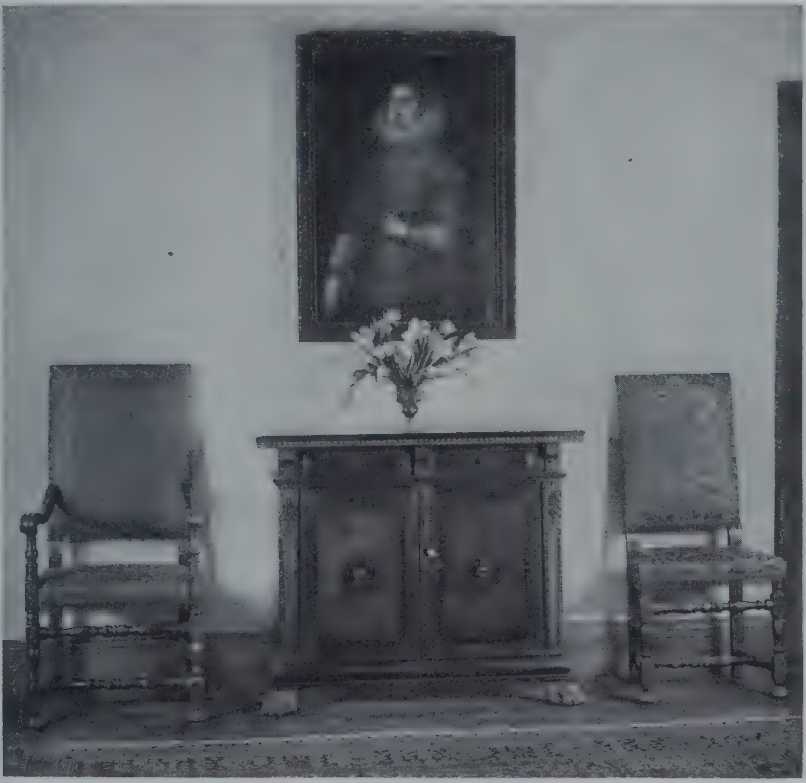

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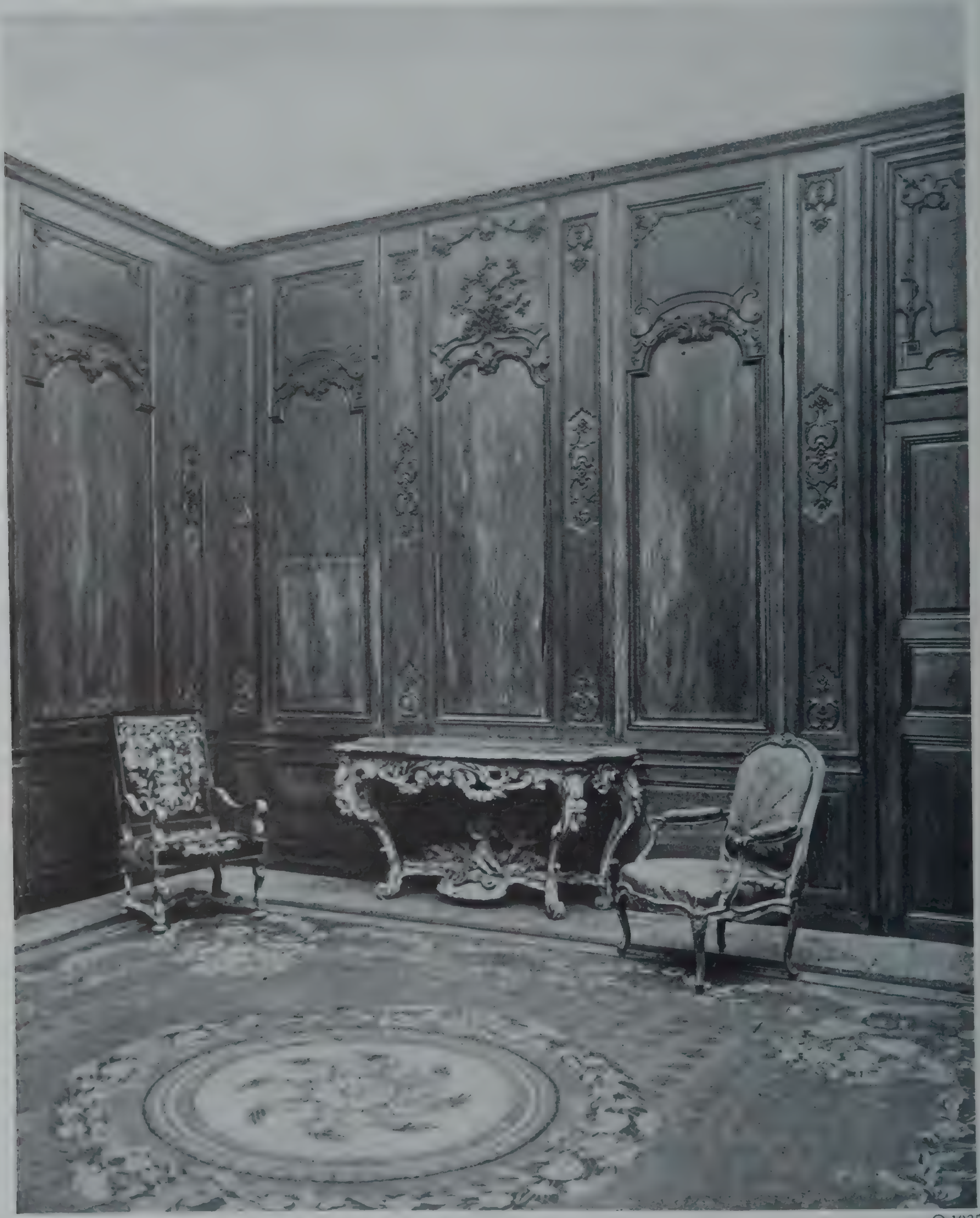

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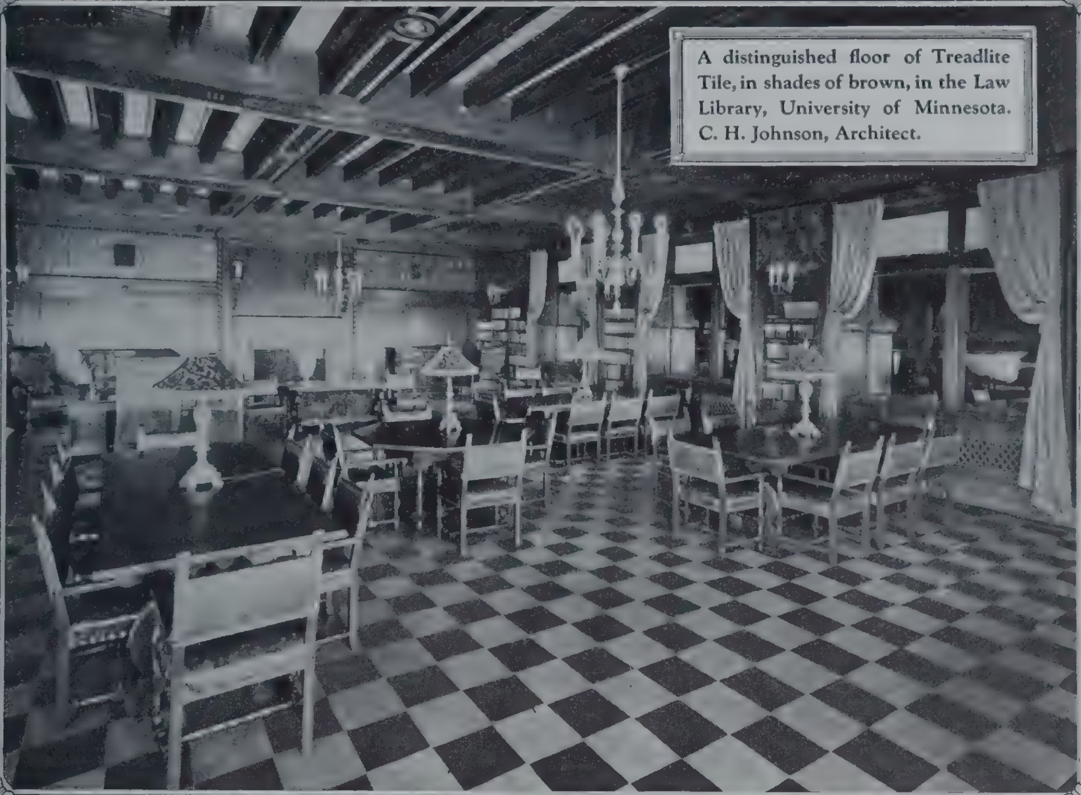

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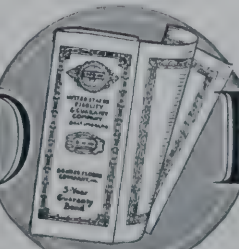

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Our book, "The Story of American Walnut," gives you an interesting survey of the history of this fine wood, its uses through the ages, its advantages and many superiorities. You'll find it a valuable addition to your library. A copy will be mailed postpaid on request. Also we will send on request our Notes on Walnut Specifications, helpful in figuring walnut trim, floors, etc.

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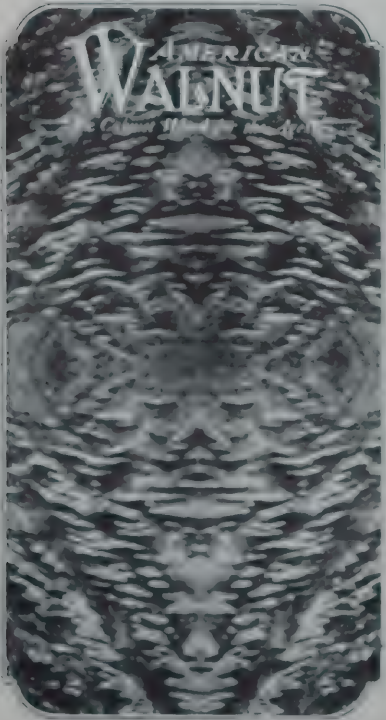
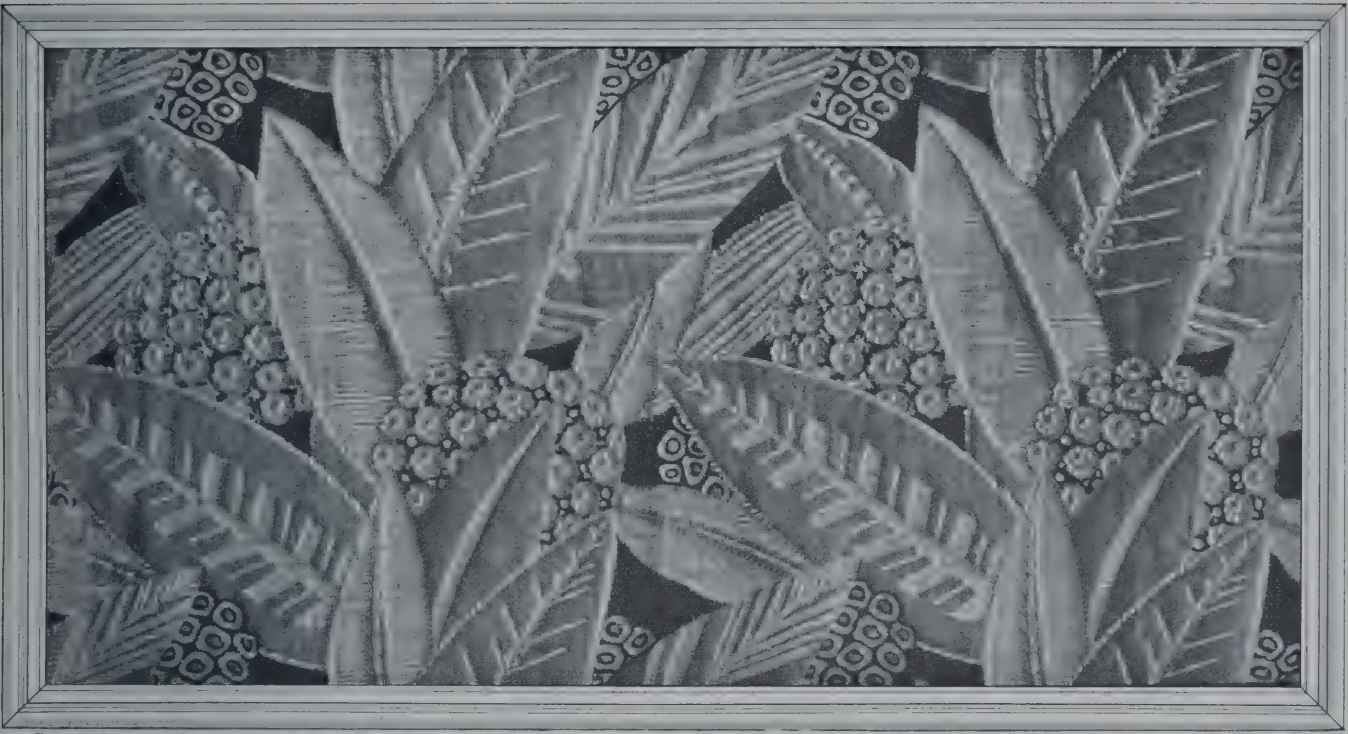
Room 1000, 616 South Michigan Avenue Chicago, Illinois

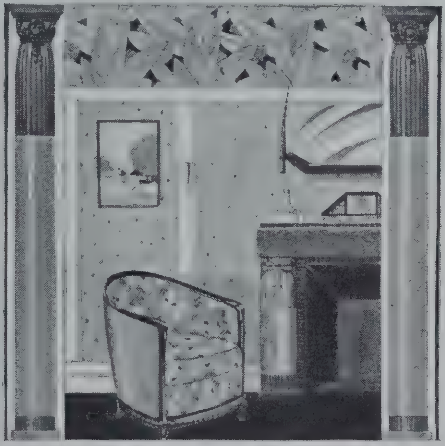


[illegible] matched panel of ripple stump walnut



Large leaves of glistening metallic threads enhanced by the luminous splendor of rayon unite in a design of simple grandeur

A SUPERB BROCADE



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IN the bright, hard green of jade, glistening with the lustre of rayon and shining threads of gold, this design superbly combines grandeur and simplicity.

From edge to edge the brilliant pattern of broad interlacing leaves all but covers the jet-black ground. Sweeping in lines, bold in conception, it is so beautifully proportioned and balanced that it can be used successfully in the decoration of large rooms or small.

Paul Follot himself—one of the masters of L'Art Moderne—created this design. Perhaps you remember it at the Paris Exposition of Decorative Arts as a frieze in one of the rooms of "A Modern Embassy"? Or saw it with other fabrics now in the collection of F. Schumacher and Company in the Roubaix-Tourcoing pavilion?

The reserve of line, the conscious simplification, characteristic of these new designs, are both soothing and refreshing.

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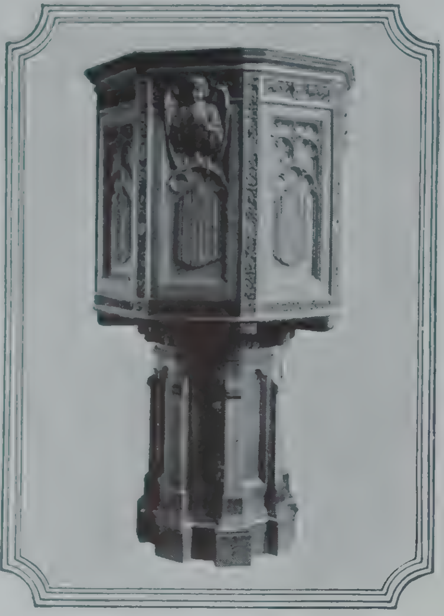

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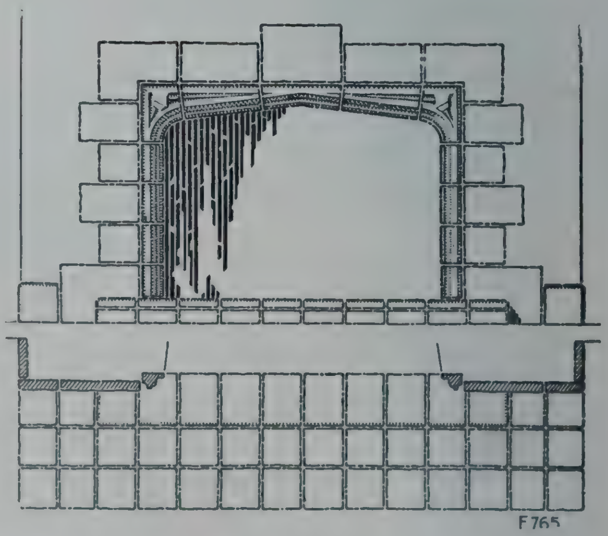

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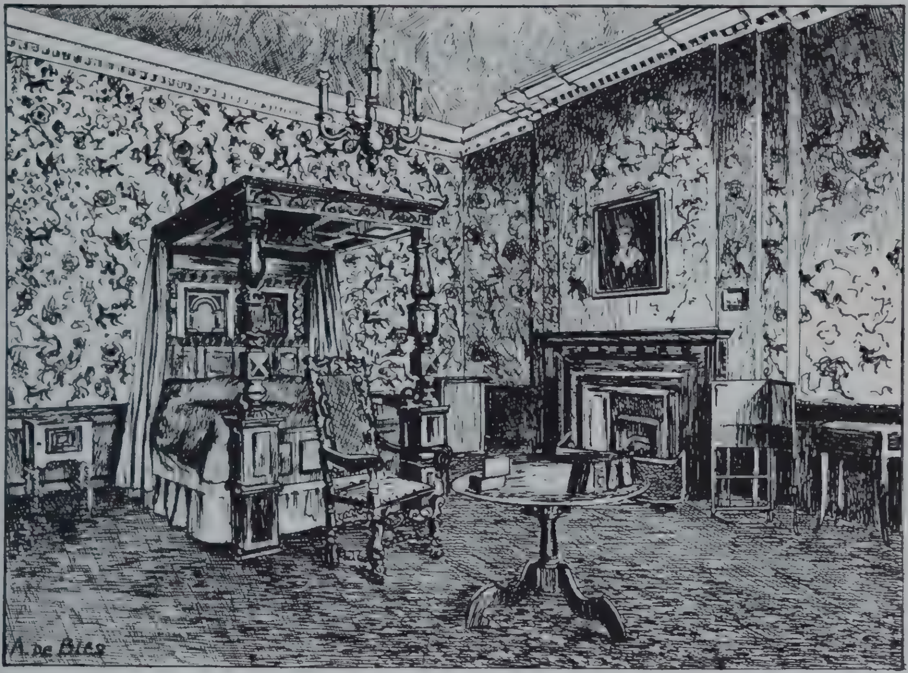

HAREWOOD HOUSE, the handsome Georgian seat of Princess Mary's father-in-law, is another example of the artistic use of Far Eastern wallpapers. The large bedroom illustrated above is decorated with such a paper which blends well with the oak and walnut furniture in several period styles. The "mille-cerfs" motive is treated as a symbol of calm and gentleness by the Buddhists who believe that the Buddha was born eleven times as a deer. It is also a symbol of longevity.

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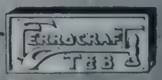

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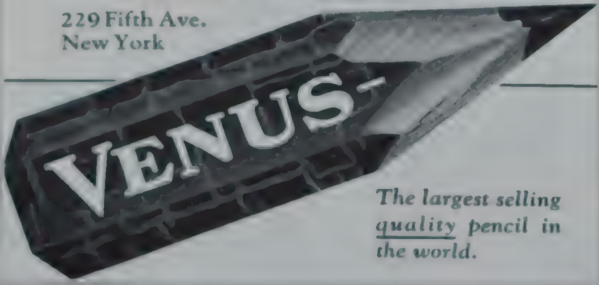

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"61" FLOOR VARNISH

Painted by Walter Biggs. Copyright 1925, P&L

Accidents become incidents when floors are finished with "61" Floor Varnish

Where floors are finished with "61" Floor Varnish, accidents not only become incidents but floor cares almost cease to exist. No attention is necessary for years, other than ordinary cleaning.

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As for being waterproof—"61" is so resistant to water and other liquids, hot or cold, that for years, little mention has been made of this inherent characteristic. "61" Floor Varnish will *not* turn white and the old-fashioned woman who wants to be sure the floor is *clean*, may if she wishes, scrub it with soap and water to her heart's content.

"61" is designed to wear on *floors*, and it is reasonable to regard *wear* as the all-important characteristic rather than any stunt waterproof test.

"61" Floor Varnish, *Dull Finish*, applied over two coats of the Gloss, gives the effect of a rubbed surface—is waterproof and durable, and is in great favor with architects, painters and home owners where a dull finish is required on floors or woodwork. *Let the Pratt & Lambert Architectural Service Department solve your finishing problems.*

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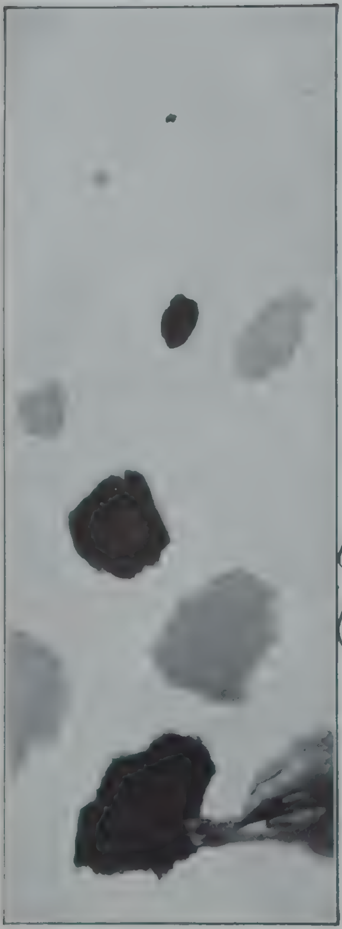
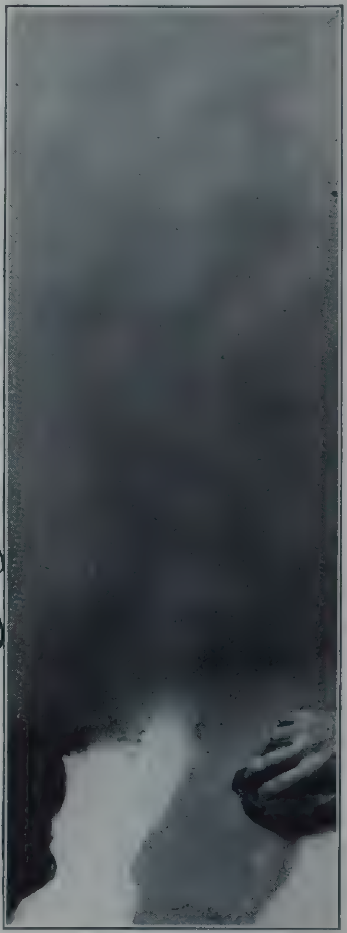
DISTINCTIVE WALL EFFECTS

The Shaded Tiffany Finish



After the selected ground coat is dry, a coat of Dutch Boy flatting oil is applied. While the flatting oil is still wet, the glazing colors are put on in spots. The spots should vary from small, widely spaced ones at the top to larger, more closely spaced ones at the bottom as shown.

With a circular motion the spots of glazing colors are blended together by means of a ball of cheesecloth. The colors are wiped out entirely in a few places to permit portions of the ground coat to show through. Then the work is finished by tamping with a ball of cheesecloth.



Eighth of a series showing how various wall effects are obtained with Dutch Boy white-lead and Dutch Boy flatting oil.

by M. REA PAUL, *Consulting Colorist*

AN exquisite harmonizing and gradation of coloring are found in the shaded Tiffany finish. It differs from the plain Tiffany finish in that it is gradually shaded from dark coloring at the base to the lighter first coat at the top.

The shaded Tiffany is especially well suited for use in low-ceiling interiors as a means of giving the appearance of increased height. It may be used to advantage in the hotel grill, lobby or corridor; in the assembly room of the school or for the larger low-ceiling rooms in the home. The glazing colors selected for use may be so blended as to produce a soft, unobtrusive, but decidedly interesting effect.

Write for Free Samples

If you will write our nearest branch, we shall be glad to send you actual painted samples of the shaded Tiffany finish and any or all of the other seven finishes described in this series on Distinctive Wall Effects.

We also offer you without charge the help of our Department of Decoration. Color specialists will assist you in seeing that you secure the decorative treatments you have in mind. They will help select the schemes of treatment, submit for your approval color suggestions and color renderings and, if you wish, assist in the writing of your specifications. For this service, simply address the Department of Decoration in care of our nearest branch.

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Eagle White Lead in Oil was used by the National Decorating Service for the painting of the Straus Building, because Eagle is known to combine the qualities of maximum protection and great beauty. Since 1843 Eagle White Lead, Pure Old Dutch Process, has been the choice of good painters everywhere.

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TO complete the architectural achievement of a beautiful stairway, a finish must be used that will enhance the graceful lines and accentuate the artistic setting that will provide lasting, durable beauty for the handiwork of the master craftsmen who built it.

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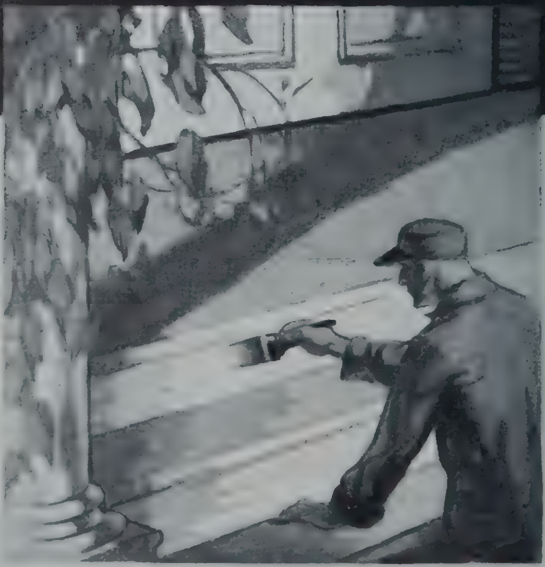

AND Ripolin, the original Holland enamel paint, has been selected by architects in America for more than twenty years for *exterior* trim decoration. Its impervious texture, its lasting whiteness, have been its artistic recommendations. But it covers generously, and its long life adds just so much more to its economy.

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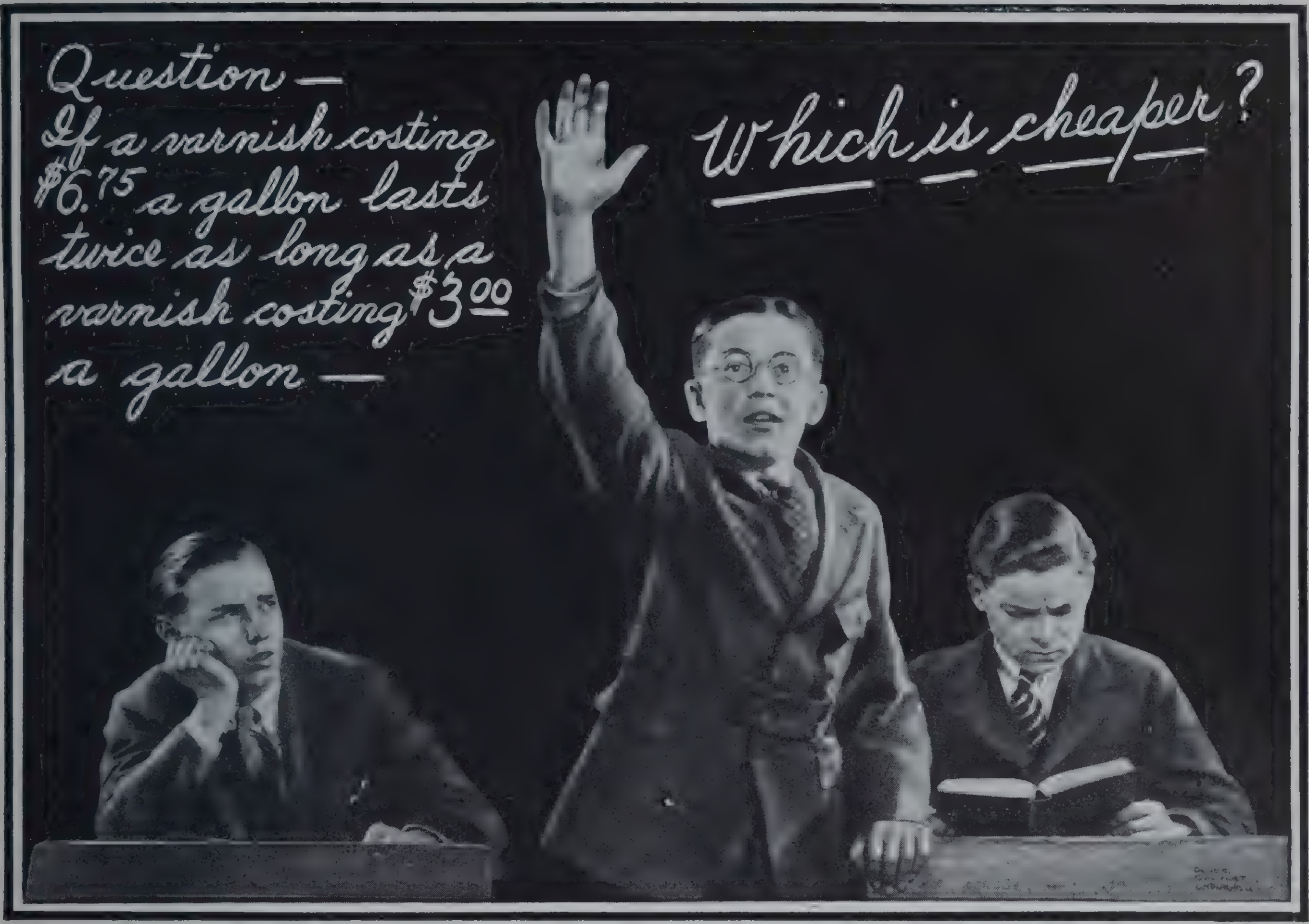

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A Problem in Maintenance Cost

ANY school boy will answer the question on the black board in a minute. But he won't figure on the cost of labor! Neither will he consider the time and trouble of doing the job 2 or 3 times.

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Chateau in Normandy

Most Famous of Eight Famous Periods—

FRANCE IN THE EIGHTEENTH CENTURY

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Yet its very perfection is apt to leave us cold.

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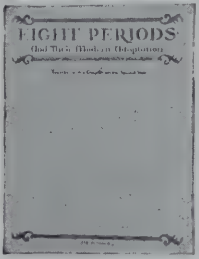
The book "Eight Periods and Their Modern Adaptation," prepared by the Murphy Varnish Company, contains a valuable, comprehensive chapter on French Influence in the Eighteenth Century.



Thousands of architects and interior decorators have praised it—found it a wonderful guide in transferring French influence to American art—in adapting the characteristics of the late Eighteenth Century to modern usage.

It is interesting, authoritative, up-to-date! Illustrated with actual photographs of charming French interiors here and abroad. It gives in handy reference form suggestions and information on the selection of hangings and upholstery, fittings and decoration. Also detailed specifications for adapting seven other famous periods to modern requirements.

You will want a copy for your file. A letter to us will bring it.

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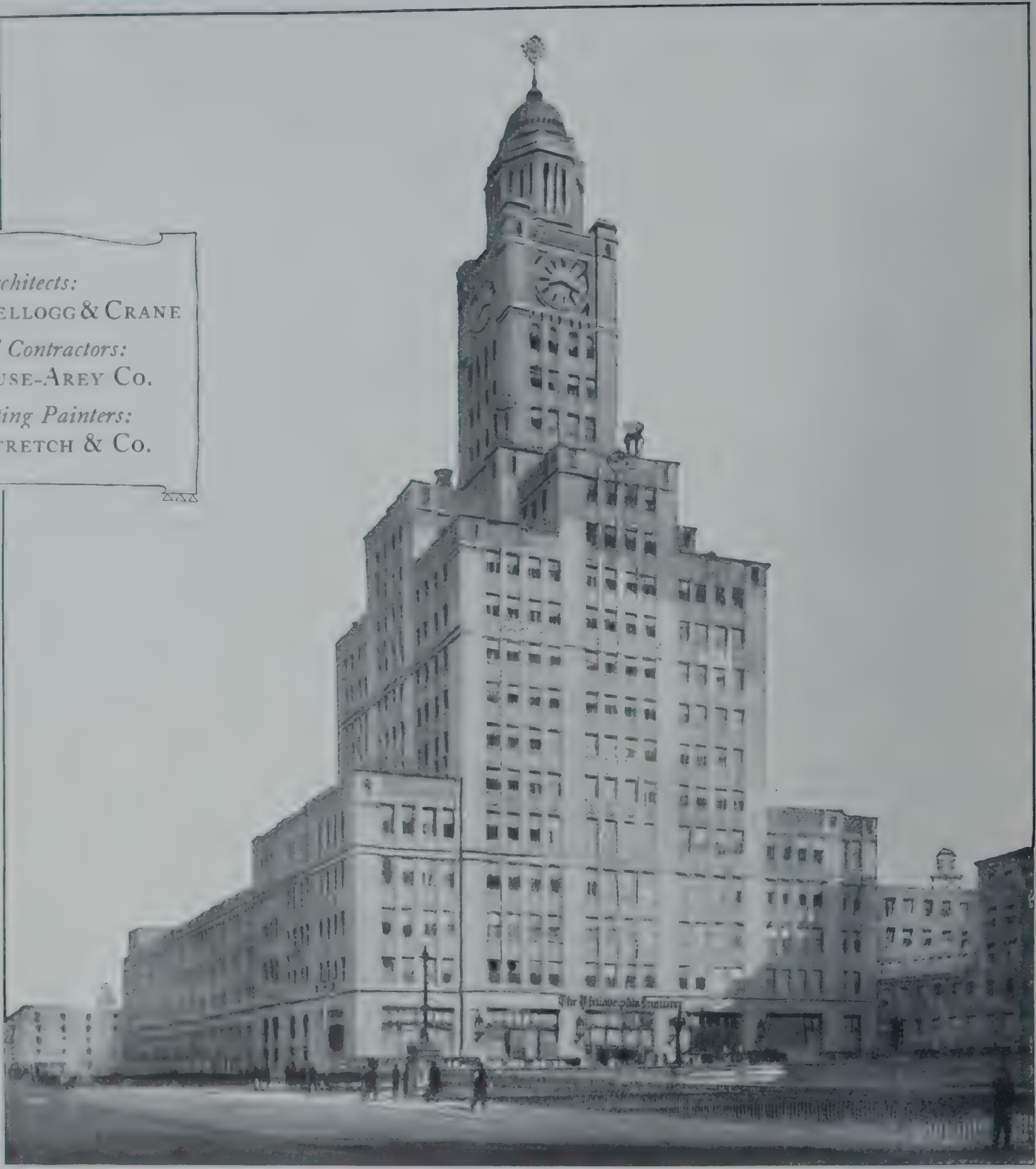

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THE new home of the Philadelphia Inquirer is one of the most notable buildings of its kind in the world. It has a depth of an entire city block, is practically a block in width and there is nearly as much of the building below ground as above.

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The selection of the Sherwin-Williams products exclusively for the Elverson Building is indicative of the standards maintained throughout this remarkable structure. It was found that Sherwin-Williams had a product exactly suited to every surface in the building requiring finishing. More specific details will be furnished promptly upon request. In writing, ask for a copy of the Architects' Painting Guide.

SHERWIN-WILLIAMS

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THIS Arch of Augustus at Rimini was built about 27 A. D. for a beloved ruler and was once the entrance to the ancient walled city. Although out of the tourist's accustomed path, Rimini is one of the most picturesque of Old World cities. What could be more appropriate than a 3 B Eldorado to catch and hold the spell of such a place!

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CONTAINS NO BENZINE OR ROSIN

There is no adulteration in Martin's 100% Pure Varnish. It is composed 100% of Pure—Old-Fashioned—Logical Varnish materials; put together in the most modern and efficiently equipped varnish plant in this country. The results to you mean satisfied and permanent customers, increased demand and increased profit.

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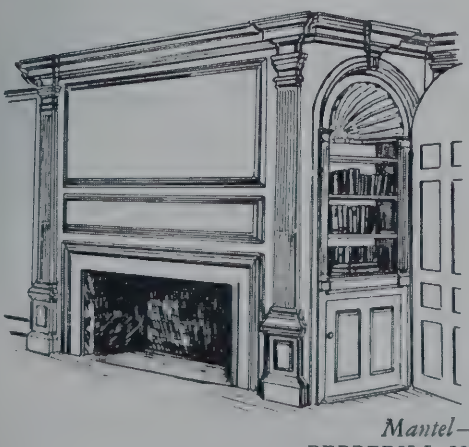

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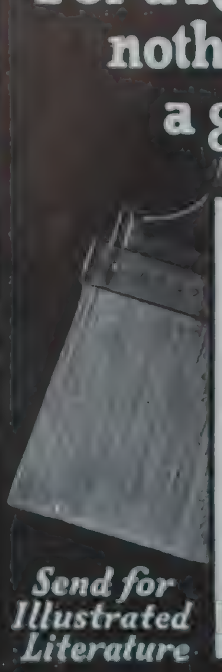

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SPECIFICATIONS
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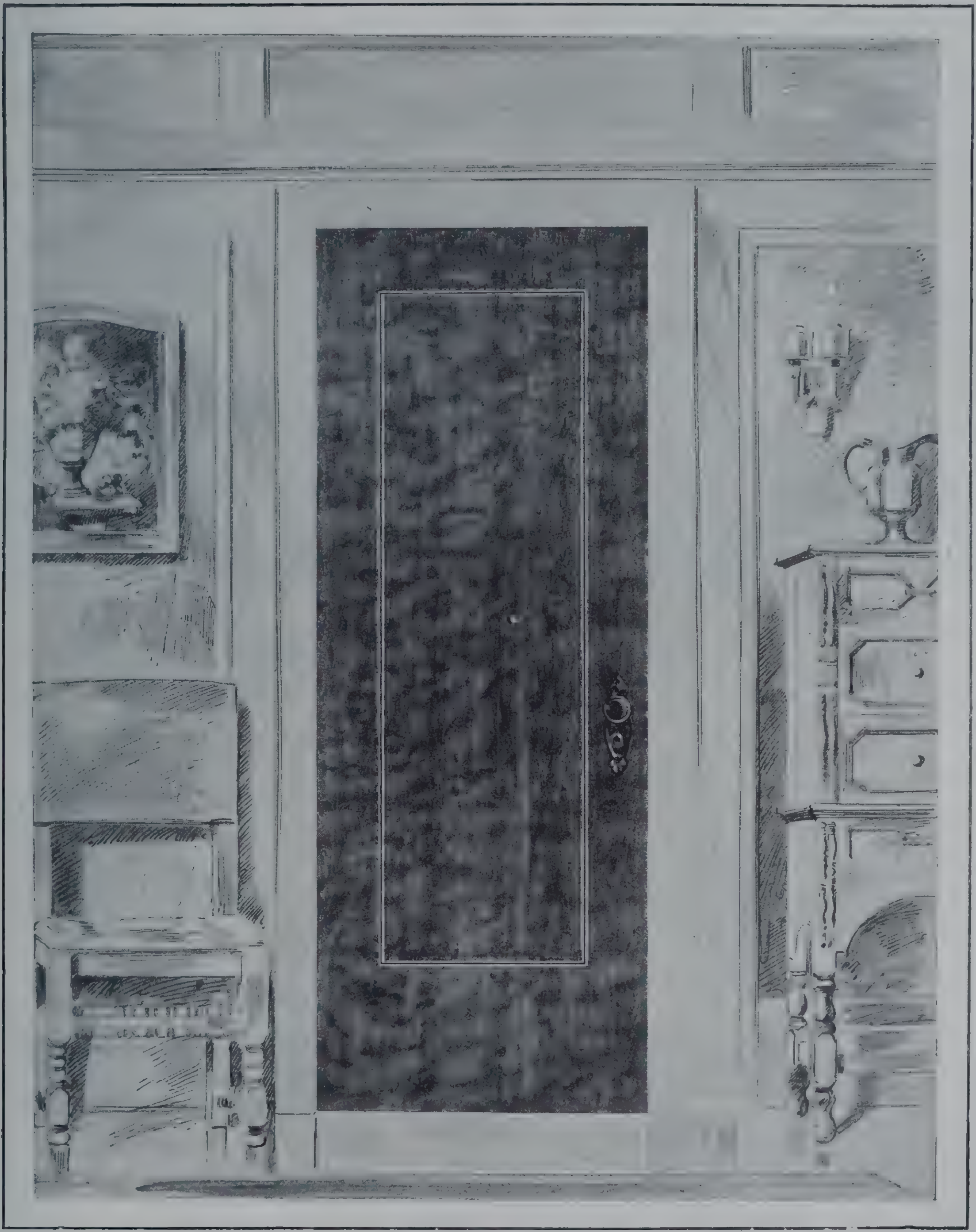

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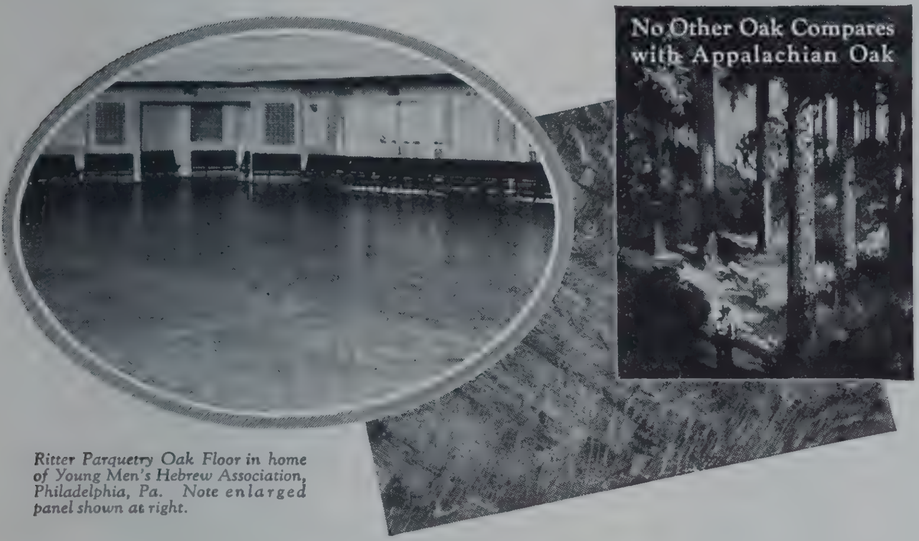

Ritter Parquetry Oak Floor in home of Young Men's Hebrew Association, Philadelphia, Pa. Note enlarged panel shown at right.

WITH a conscientious desire to obtain the best in Oak flooring many architects specify "Clear" grade—only to be disappointed with the result. That is because in the standard rules for grading consideration is given only to such defects as knots, sap and wormholes; no consideration being given to the character of the ***grain, texture*** and ***color*** of the wood.

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Technical Data on Laying Oak Floors

7.—LAYING PARQUETRY FLOORING

Preparatory to laying Parquetry Oak Flooring, the sub-floor should be **thoroughly dry** and swept to remove all dirt, dust, shavings, nails, and other refuse. The sub-floor should then be covered with a good grade of moisture-proof paper as described in article number four of this series. Also see same article relative to framing in the fireplaces.

METHOD OF LAYING

Parquetry floors are usually laid with a margin of strip flooring as a border around the walls. The width of the margin of strip flooring used depends upon the size of the room and squares used.

The laying of Parquetry Flooring can be started in the center of the room (Figure 1) and thus be successfully laid when much care is used.

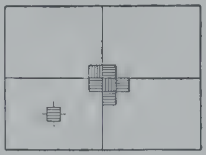


Fig. 1

If the room is not perfectly square this method will tend to equalize the margin. Also it can be started from corner by squaring up same. (Figure 2).

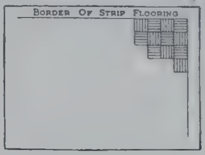


Fig. 2

The laying of the herringbone pattern is usually started from the center of the room. (Figure 3).

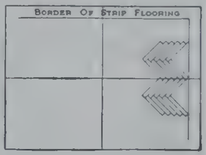


Fig. 3

Slip tongue should be used on all blocks where the grooves come together.

KINDS OF NAILS REQUIRED

Each piece of Parquetry Flooring should be nailed with two nails, one nail near each end at a distance of one-fourth the length of the piece from the end.

Some floor layers use "skip-nailing" on short length parquetry. When well done this method is not objectionable, but the use of two nails is **preferable.**

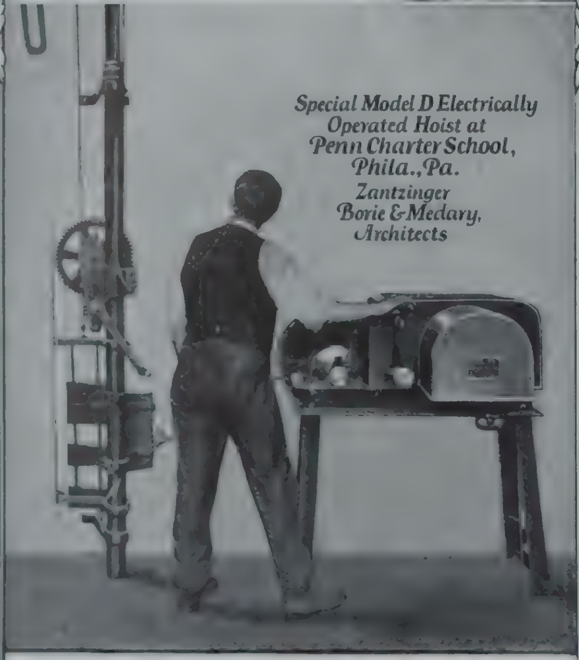
The use of 7d cut casing nails is recommended. Under no conditions use wire nails. The nails should be driven at a 45° to 55° angle.

On margin strips which have to be face nailed 10d wire finish nails should be used, countersunk and puttied over.

ALLOWANCE FOR EXPANSION AT WALLS

It is important that at least ¼" space be left on all sides of the room between the wall and the hardwood floor to allow room for the expansion of the finished floor, should it absorb some dampness. This space is covered by the quarter round or base molding.

This is the seventh and last of this series. See **Sweet's** and **American Architect Specification Manual** for complete information.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20th Architectural Catalog pp. 2625-2633
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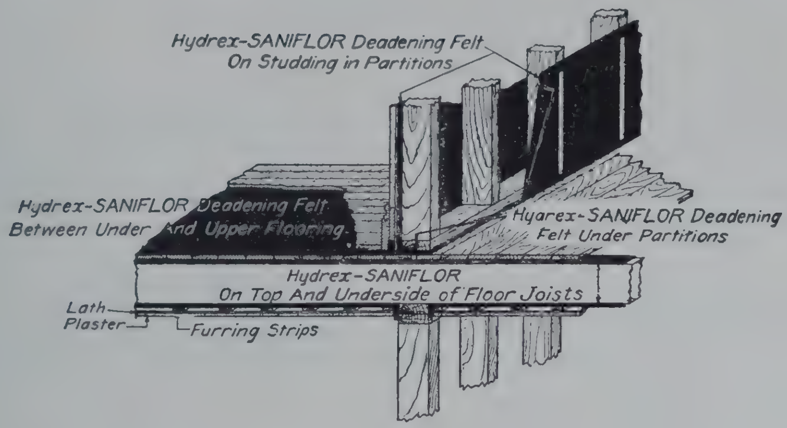
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The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to *The Architectural Forum*, 383 Madison Ave., New York, or the manufacturer direct, in which case kindly mention this publication.

ACOUSTICS

Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.

Architectural Acoustics. Booklet. 6 x 9 in. 24 pp. Illustrated. Treatise on the correction of architectural acoustics in Churches, schools, hospitals, office buildings and other places.

Rubberstone Corporation, 1400 Broadway, New York City.

Sound Reflections. Brochure. 12 pp. 5½ x 8 in. A valuable little work on acoustics.

ASH HOISTS—ELECTRIC AND HAND POWER

Gillis & Geoghegan, 544 West Broadway, New York, N. Y.

General Catalog. 8½ x 11 in. 20 pp. Fully illustrated. Contains specifications in two forms (with manufacturers' name and without). Detail ¼ in. scale for each telescopic model and special material-handling section.

The Man-Saving Load Lifter. 5⅞ x 8⅞ in. 8 pp. Illustrated. Describes G&G Telescopic and Non-Telescopic Hoists for handling material in factories.

BOILERS—See Heating Equipment

BRICK

Acme Brick Company, Ft. Worth, Tex.

Series No. 1

Architectural designs rendered in Acme Brick. Booklet. 11 x 8½ in. Illustrated. A series of 48 photogravures showing architectural designs rendered in Acme brick. Illustrations show the various types of buildings erected in the Southwest in recent years. Sent free to architects applying on their office stationery.

American Face Brick Association, 1751 Peoples Life Bldg., Chicago, Ill.

The Story of Brick. Third Edition. Booklet. 7 x 9¼ in. 55 pp. Illustrated. Presents the merits of face brick from structural and artistic standpoints. Tables of comparative costs.

The Home of Beauty. Fourth Edition. Book. 8 x 10 in. 72 pp. Color plates. Presents fifty designs for small face brick houses submitted in national competition by architects. Text by Aymar Embury II, Architect. Price 50c.

"English Precedent for Modern Brickwork." A book of plates and measured drawings of Tudor and Gothic brickwork with a few recent variations of modern architects in the spirit of the old work. Price $2.00. 100 pp. Illustrated. 8½ x 11 inches.

Architectural Details in Brickwork. Series 1, 2, 3. 8½ x 11 in. Very useful to the architect or draftsman. Sent free to architects applying on their office stationery. To others $1.50.

BUILDERS

Longacre Engineering & Construction Co., Inc., 345 Madison Avenue, New York City.

Send for latest information.

BUILDING FINANCE

S. W. Straus & Co., 565 Fifth Ave., New York, N. Y.

The Straus Plan of finance is an attractively prepared booklet of 30 pages 6 x 9 inches in size, which summarizes the plan under which S. W. Straus & Co. finance modern office building, apartment house, residential hotel and other types of construction. It is illustrated with sketches of buildings throughout the United States which secure bond issues purchased by S. W. Straus & Co.

BUILDING STONE—See Stone, Building

BUILDING, STANDARD STEEL

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.

Truscon Standard Building Catalog. 8½ x 11 in. 48 pp. Contains data and illustrations.

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Massillon Steel Joist Company, The, Massillon, Ohio.

Massillon Bar Joists. Pamphlet, 8½ x 11 in. 8 pp. Illustrated. Pamphlet containing general information descriptive of Massillon Bar Joist Fireproof Floor Construction, with cuts showing methods of construction and photographs of installations.

Detailed Dimensions, Safe Loading Tables, Details of Construction. Catalog. 8½ x 11 in. 32 pp. Illustrated.

Catalog contains complete detailed information about each Massillon Bar Joist Structural Unit.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 in. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.

Truscon Data Book. Catalog. 3½ x 6 in. 128 pp. Illustrated. Contains complete information with illustrations on Truscon reinforcing steel, steel windows, metal lath, standard buildings, concrete inserts, steel joists, pressed steel stamping and chemical products.

CARPETS, IMPORTED

Kent-Costikyan Trading Company, Inc., 484 Fifth Ave., New York, N. Y.

Rugs. Catalog. 9½ x 6½. 56 pp. Illustrated. Illustrates and describes an unusual collection of Oriental and Occidental rugs with stock list.

CEMENT

Louisville Cement Co., 315 Guthrie St., Louisville, Ky.

Brixment. Booklet. 7½ x 5 in. 16 pp. Illustrated. Brixment, what it is, what it does, how it does it and why.

CONDUIT

National Metal Molding Co., 1113 Fulton Building, Pittsburgh, Pa.

Bulletin of all National Metal Molding Products. In correspondence folder. 9½ x 11½ in.

Sheraduct. Circular. 5 x 8 in. Illustrated.

Flaxsteel. Circular. 5 x 8 in. Illustrated.

CONSTRUCTION, FIREPROOF

Massillon Steel Joist Co., Massillon, Ohio.

Massillon Bar Joists. Brochure, 8½ x 11 in. Illustrated. Full data regarding the steel used for construction of floors in fireproof buildings of various kinds.

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.

Standard Fire Proofing Bulletin 171. 8½ x 11 in. 32 pp. Illustrated. A treatise on fireproof floor construction.

National Steel Fabric Co., Union Trust Co., Pittsburgh, Pa.

Booklet Fireproofing Structural Steel, Booklet, 12 pp., 8½ x 11 ins. Illustrated. Deals fully with use of steel for fireproofing concrete, and of steel fabric for beam and column wrapping.

Northwestern Expanded Metal Co., 1234 Old Colony Building, Chicago, Ill.

Northwestern Expanded Metal Products. Booklet. 8½ x 10¾ in. 16 pp. Fully illustrated, and describes different products of this company, such as Kno-burn metal lath, 20th Century Corrugated. Plaster-Sava and Longspan lath channels, etc.

DAMPPROOFING

Philip Carey Co., Lockland, Cincinnati, Ohio.

Architects' Specifications for Carey Built-Up Roofing. Booklet. 8 x 10¾ in. 24 pp. Illustrated. Complete data to aid in specifying the different types of built-up roofing to suit the kind of roof construction to be covered.

Carey Built-Up Roofing for Modern School Buildings. Booklet, 8 x 10¾ in. 32 pp. Illustrated. A study of school buildings of a number of different kinds and the roofing materials adapted for each.

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York.

Specification Sheet, 8½ x 11 in. Descriptions and specifications of compounds for dampproofing interior and exterior surfaces.

Toch Brothers, 110 East 42nd Street, New York City.

Specifications for Dampproofing, Waterproofing, Enameling and Technical Paint. Complete and authoritative directions for use of an important line of materials.

DOORS AND TRIM, METAL

The American Brass Company, Waterbury, Conn.

Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc.

The Compound & Pyrono Door Company, St. Joseph, Mich.

Pyrono Handbook for Architects and Contractors. 8½ x 11 in. 16 pp. Contains full information regarding Pyrono Firepoof Veneered Doors and Trim, with complete details and specifications.

Pyrono details in sheet form for tracing.

Dahlstrom Metallic Door Company, 425 Buffalo St., Jamestown, N. Y.

Architectural Catalog. 10 x 14 in. 46 pp. 11 sections. Illustrated. Catalog showing the regular styles and types of hollow metal doors and interior trim. Various types of frames and other architectural shapes also illustrated.

Buildings as They Should Be. Booklet 7½ x 10½ in. A lavishly illustrated publication giving data and views of buildings of different kinds equipped with Dahlstrom doors and trim.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Fire Doors and Hardware, Booklet. 8½ x 11 in. 64 pp. Illustrated. Describes entire line of tin-clad and corrugated fire doors, complete with automatic closers, track hangers and all the latest equipment—all approved and labeled by Underwriters' Laboratories.

DRAFTING MATERIALS

American Lead Pencil Company, 220 Fifth Ave., New York, N. Y.

VENUS Pencil in Mechanical Drafting. Booklet C20. 6 x 9 in. 16 pp. Illustrated. Describes the many possibilities of the VENUS for technical drawing.

Catalog, 3¾ x 8¾ in. 25 pp. Illustrated. Describes pencils, holders, erasers, etc.

DUMBWAITERS

Sedgwick Machine Works, 151 West 15th St., New York.

Catalog and Service Sheets. Standard specifications, plans and prices for various types, etc. 4¼ x 8¼ in. 60 pp. Illustrated.

ELECTRICAL EQUIPMENT

Frank Adam Electric Company, St. Louis, Missouri.

Catalog No. 32—1924 Panelboards—Steel Cabinets. 48 pp. 7¾ x 10½ in. Illustrates and describes Safety Type Sectionally Constructed Panelboards, together with complete catalog listings.

The Edwin F. Guth Co., 2615 Washington Ave., St. Louis, Mo.

Brascolite Catalog No. 10. 10½ x 8 in. 28 pp. Illustrated. Catalog listing Brascolite fixtures in wide variety of plain and decorative types. Contains information of value in planning a lighting installation.

Bank and Office Building Catalog. 10½ x 8 in. 16 pp. Illustrated. Catalog listing a selected line of fixture equipment for application to all outlets in bank or office buildings or similar buildings.

Architectural Bulletins, Series of 5. 10½ x 8 in. 28-64-44-28-44 pp. Illustrated. A series of five bulletins, each treating upon the application of lighting to one particular class of service. Hos-

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 87*

ELECTRICAL EQUIPMENT—Continued

pitals; Banks and Office Buildings; Schools, Colleges and Y. M. C. A. Buildings; Church and Fraternal Buildings; Commercial Servic.e

Special Hospital Catalog. 10½ x 8 in. 9 pp. Illustrated. Illustrates a special selection of fixture equipment for hospital use including types suitable for all outlets.

Hart & Hegeman Mfg. Co., The, 342 Capitol Ave., Hartford, Conn.

The Line of Least Resistance. Catalog R. 10½ x 7⅛ in. 152 pp. Illustrated. Complete display of switches, sockets, accessories and wiring devices with brief description.

A new H & H Switch. Leaflet. 3½ x 6 in. 4 pp. Illustrated. Illustrates a new H & H composition base push switch of De Luxe quality.

Tumbler Switches. Booklet. 3½ x 6 in. 6 pp. Illustrated. Shows complete line of H & H Tumbler Switches.

Architects' Handbook of H & H Wiring Devices. Booklet 8½ x 11 in. 16 pp. "Written by an Architect for Architects."

Holtzer-Cabot Electric Company, Amory Street, Boston 19, Mass.

Signaling Systems for Hospitals. Brochure. 8½ x 11 in. 42 pp. Illustrated. Contains complete data covering Nurse's Call, Doctor's Call, "In" and "Out" Fire Alarm, Watchman's Clock and Telephone Systems.

Holtzer-Cabot Electric Co., Boston and Chicago.

Bank signal and alarm systems. Brochure. 48 pp. 8½ x 11 in. Illustrated. An invaluable work on protective and other appliance for banks.

Kohler Co., Kohler, Wis.

Principle and Proof. Booklet. 48 pp. Illustrated. Describes a standard voltage automatic electric power and light plant for isolated homes, for emergency auxiliary or permanent lighting in stores, theaters, churches and schools.

Pick & Company, Albert, 208 West Randolph St., Chicago, Ill.

School Cafeterias. Booklet. 9 x 6 in. Illustrated. The design and equipment of school cafeterias with photographs of installation and plans for standardized outfits.

Kitchen Equipment. Booklet. 9 x 6 in. Illustrated. Photographs and descriptions of Hotel, Club and Hospital kitchens with treatise on plans and equipment of efficient kitchens.

Electric Kitchen Equipment. Booklet. 8½ x 11½ in. Illustrated. Photographs and descriptions of PIX "Master-Made" ranges, ovens, etc., for Hotels and Restaurants.

Simplex Wire & Cable Co., 201 Devonshire St., Boston, Mass.

Simplex Manual Catalog and Reference Book, 6¼ x 4¼ in. 92 pp. Contains in addition to information regarding Simplex products, tables and data for the ready reference of architects, electrical engineers and contractors.

Specification No. 2053. For Simcore Wires and Cables. Various sizes of Conductor-Rubber Insulation.

Western Electric Co., 195 Broadway, New York, N. Y.

Western Electric Inter-Phones for Apartment Houses. Booklet. 5¼ x 6¾ in. 16 pp. Illustrated. Illustrates and describes use of Inter-Phones in Apartment Houses.

Installing and Maintaining Western Electric Inter-Phones. In addition to giving general information on layout of system, details are supplied on individual Inter-Phone Systems, listing battery and wiring requirements.

ELEVATORS

Elevator Supplies Co., Inc., Hoboken, N. J.

Lubricators for Elevator Guide Rails. Folder 8½ x 11 in. Form S. A.-435.

A Brief Catalog. Brochure 8½ x 11 in. 16 pp. Valuable for anyone interested in elevators.

Otis Elevator Company, 260 Eleventh Ave., New York, N. Y.

Otis Push Button Controlled Elevators. Descriptive leaflets. 8½ x 11 in. Illustrated. Full details of machines, motors and controllers for these types.

Otis Geared and Gearless Traction Elevators of All Types. Descriptive leaflets. 8½ x 11 in. Illustrated. Full details of machines, motors and controllers for these types.

Escalators. Booklet. 8½ x 11 in. 22 pp. Illustrated. Describes use of escalators in subways, department stores, theaters and industrial buildings. Also includes elevators and dock elevators.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Elevators. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes complete line of "Ideal" elevator door hardware and checking devices. also automatic safety devices.

Sedgwick Machine Works, 151 West 15th St., New York, N. Y

Catalog and descriptive pamphlets, 4¼ x 8¼ in. 70 pp. Illustrated. Descriptive pamphlets on hand power freight elevators, sidewalk elevators, automobile elevators, etc.

ENAMELING

Toch Brothers, 110 East 42nd Street, New York City.

Specifications for Dampproofing, Waterproofing, Enameling and Technical Painting. Complete and authoritative directions for use of an important line of materials.

FIRE DOORS—See Doors, Windows and Trim, Metal

FIREPROOFING—See also Construction, Fireproof

The General Fireproofing Company, Youngstown, Ohio.

Fireproofing Handbook. 64 pp. 8½ x 11 in. Illustrated. Gives methods of construction, specifications, data on Herringbone metal lath, steel tile, Trussit solid partitions, steel lumber, self-centering formless concrete construction.

National Steel Fabric Co., Union Trust Co., Pittsburgh, Pa.

Bonded Fireproofing Structural Steel. Booklet. 12 pp. 8½ x 11 in. Illustrated. Deals fully with use of steel for fireproofing concrete and of steel fabric for beam and column wrapping.

FLOOR HARDENERS (CHEMICAL)

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York, N. Y.

Lapidolith, the liquid chemical hardener. Complete sets of specifications for every building type in which concrete floors are used, with descriptions and results of tests.

FLOORING

Armstrong Cork & Insulation Co., 132 24th St., Pittsburgh, Pa.

Linotile Floors for Public and Semi-Public Buildings, 7½ x 10⅜ in. 36 pp.

Linotile Floors for Residences. 7½ x 10⅜ in. 32 pp.

FLOORING—Continued

Armstrong's Cork Tile. Revised Edition. Booklet. 24 pp. 5 x 7 in. Illustrated in color. Contains complete specifications.

Armstrong Cork & Insulation Co., Pittsburgh, Pa.

Armstrong's Cork Tile Floors. Booklet, 30 pp. 7¾ x 10½ in. An illustrated work on cork flooring.

Armstrong Cork Co. (Linoleum Division), Lancaster, Pa.

Armstrong's Linoleum Floors. Catalog. 8½ x 11 in. 36 pp. Color plates. A technical treatise on linoleum, including table of gauges and weights and specifications for installing linoleum floors.

Decorative Linoleum Floors. Portfolio of Color Plates. 11¼ x 15 in. 16 pp. Color plates.

Armstrong's Linoleum Pattern Book, 1925. Catalog. 3½ x 6 in. 200 pp. Color Plates. Reproduction in color of all patterns of linoleum and cork carpet in the Armstrong line.

Quality Sample Books. Two books, 3½ x 5¾ in. Showing all gauges and thicknesses in the Armstrong line of linoleums.

Detailed Directions for Laying and Caring for Linoleum. Handbook, 5 x 7 in. 48 pp. Instructions for linoleum layers and others interested in learning most satisfactory methods of laying and taking care of linoleum.

Business Floors. Booklet. 6 x 9 in. 48 pp. Illustrated in color. Explains use of linoleum for offices, stores, etc., with reproductions in color of suitable patterns, also specifications and instructions for laying.

Bonded Floors Company, Inc. Division of Congoleum-Nairn, Inc., 1421 Chestnut st., Philadelphia, Pa.

The "Distinctive Floors" Series. Four pamphlets 7¾ x 10¾ in. Illustrated in full color, each describing and picturing a resilient floor material, as follows:—

Battleship Linoleum. Explains the advantages and proper use of this durable, economical material.

Treadlite Tile. Shows a variety of colors and patterns of this adaptable cork composition flooring.

Natural Cork Tile. Description and color plates of this super-quiet, resilient floor.

Linoleum Specifications. Folder, 8¼ x 11 in. 8 pp. Standard specifications for installation of battleship linoleum, with detailed description and explanation. Also includes copy of Federal Government Specification No. 209.

Practical Working Specifications for installing battleship linoleum treadlite tile, and cork tile.

Carter Bloxonend Flooring Co., Keith & Perry Bldg., Kansas City, Mo.

Bloxonend Flooring. Booklet 3¼ x 6¼ in. 20 pp. Illustrated. Describes uses and adaptability of Bloxonend Flooring to concrete, wood or steel construction, and advantages over loose wood blocks.

File Folder. 9⅜ x 8⅝ in. For use in connection with A. I. A. system of filing. Contains detailed information on Boxonend Flooring in condensed, loose-leaf form for specification writer and drafting room. Literature embodied in folder includes standard Specification Sheet covering the use of Boxonend in general industrial service and Supplementary Specification Sheet No. 1, which gives detailed description and explanation of an approved method for installing Bloxonend in gymnasiums, armories, drill rooms and similar locations where maximum resiliency is required.

Duraflex Company, Inc., 11 Pleasant Street, Baltimore, Md.

Why They Used It in One of Boston's Finest Buildings.

Typical of Character of One of the 13 Original States.

Illustrated 4-page brochures, 5¼ x 8¼ in., giving data on "Duraflex" floors.

Permanent, Easy Tread Flooring. Folder. 4 pp. 8½ x 11 in. on floor covering material.

Specifications for Sub-Floors for "Duraflex." Folder. 11 pp. 8½ x 11 in. on base for laying "Duraflex."

Test of Floorings. Folder. 2 pp. Report of Flooring Committee of American Hospital Association.

Muller Co., Franklyn R., Waukegan, Ill.

Asbestone Composition Flooring. Circular. 8½ x 11 in. Descriptions and Specifications.

Norton Company, Worcester, Mass.

Filing Folder. 8½ x 11¾ in. 27 pp. Illustrated with drawings. Specification data for architects.

Ritter Lumber Co., W. M., Columbus, Ohio.

Ritter Oak Flooring, brochure 5 x 7 in. 31 pp. Illustrated. Excellent data on floors of different kinds and of various woods.

Beauty Begins in the Forest. Large illustrated folder on modern flooring.

Rodd Company, The, Century Bldg., Pittsburgh, Pa.

Redwood Block Floor. Booklet. 4 x 9 in. Illustrated. Contains technical information on Rodd Floors of California Redwood Blocks. Also specifications.

Rubberstone Corporation, 1400 Broadway, New York City.

Rubberstone; A Tile Flooring. Pamphlet. 4 pp. 8½ x 11 in. Describes and illustrates a flooring material.

Specifications for Rubberstone Floors. Pamphlet. 4 pp. 8½ x 11 in. Complete specifications for floor of Rubberstone Tile.

Stedman Products Company, South Braintree, Mass.

Stedman Reinforced Rubber Flooring. Booklet, 8 x 10 in., bound in "loose leaf" fashion. Discusses rubber flooring for buildings of various kinds.

U. S. Gypsum Co., Chicago.

Pyrobar Floor Tile. Folder. 8½ x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

U. S. Rubber Co., 1790 Broadway, New York

Period Adaptations for Modern Floors. Brochure. 8 x 11 in. 60 pp. Richly illustrated. A valuable work on the use of rubber tile for flooring in interiors of different historic styles.

FOLDING PARTITIONS

Wilson Corporation, J. G., 11 East 36th Street, New York, N. Y.

Sectionfold and Rolling Partitions and Hygienic School Wardrobes. Catalog No. 37. Booklet 8½ x 11 in. 40 pp. Illustrated. Describes the uses of rolling and sectional partitions, particularly in schools and churches. Also the installation of Wilson school wardrobes.

An Anaconda Installation

York & Sawyer, Architects, specified and used Anaconda Brass Pipe for the new First National Bank Building, Boston.

Anaconda Brass Pipe cannot rust or clog with rust deposits. It is guaranteed sound and physically perfect by the world's largest manufacturers of Copper, Brass and Bronze. It may be used in relatively smaller sizes than iron or steel pipe—because rust cannot reduce the internal diameter of Anaconda Brass Pipe.

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Installed by leading Plumbing Contractors

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 88*

FURNACES—See Heating Equipment.

FURNITURE

American Seating Co., 14 E. Jackson Blvd., Chicago, Ill.

Ars Ecclesiastica Booklet. 6 x 9 in. 48 pp. Illustrations of church fitments in carved wood.

Theater Chairs. Booklet. 6 x 9 in. 48 pp. Illustrations of theater chairs.

Kensington Mfg. Company, 41 West 45th St., New York, N. Y.

Photographs and full description of hand-made furniture in all the period styles, furnished in response to a specific inquiry.

Illustrated booklet indicative of the scope, character and decorative quality of Kensington furniture mailed on request.

White Door Bed Company, The, 130 North Wells Street, Chicago, Ill.

Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes and illustrates the use of "White" Door Bed and other space-saving devices.

GARAGE EQUIPMENT

Ramp Buildings Corporation, 21 East 40th St., New York, N. Y.

"Building Garages for Profitable Operation." Booklet. 8½ x 11 in. 16 pp. Illustrated. Describes the d'Humy Motoramp System of Inter-floor Travel for multi-floor garages and shows the increased profits to be derived from the use of this system. Series of Informal Data Sheets on Garage Design sent on request.

GARDEN ACCESSORIES

Davey Tree Expert Company, The, 907 Elm St., Kent, Ohio.

When Your Trees Need The Tree Surgeon. Booklet. 16 pp. 8 x 9¼ in. Illustrated. Lists and explains a number of serious tree troubles of common occurrence; contrasts the scientific methods used by properly trained and conscientious men to remedy these troubles with the work of unscrupulous or untrained men.

GLASS CONSTRUCTION

Mississippi Wire Glass, 220 Fifth Avenue, New York.

Mississippi Wire Glass. Catalog. 3⅞ x 8½ in. 32 pp. Illustrated. Covers the complete line.

GRANITE—See Stone, Building

HARDWARE

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet, 4 x 9¼ in. 8 pp. Illustrated.

McKinney Mfg. Co., Pittsburgh, Pa.

McKinney Complete Garage Hardware Sets. Catalog. 6¾ x 10 in. 20 pp. Illustrated. Describes full line of complete garage hardware sets for all kinds of entrances, with views of typical entrances and sketches.

McKinney Hinges and Butts. General Catalog. 6¾ x 10 in. Illustrates and describes complete line of McKinney wrought builders' hardware products, including hinges, butts, door hangers and track, latches, garage hardware and specialties.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Distinctive Garage Door Hardware. Booklet. 8½ x 11 in. 65 pp. Illustrated. Complete information accompanied by data and illustrations on different kinds of garage door hardware.

Sargent & Company, New Haven, Conn.

Sargent Locks and Hardware. Architects' Edition, 9 x 12 in. 762 pp. Illustrated. The latest complete catalog of Locks and Hardware.

Details to Which Standard Hardware Can Be Applied. Booklet. 6 pp. 9 x 12 in. Illustrated. Treats with diagrams, portions of doors and windows to which hardware can be applied.

Vonnegut Hardware Co., Indianapolis, Ind.

Von Duprin Self-Releasing Fire Exit Devices. Catalog 12F. 8 x 11 in. 41 pp. Illustrated.

Saving Lives. Booklet. 3¼ x 6 in. 16 pp. Illustrated. A brief outline why Self-Releasing Fire Exit Devices should be used.

HEATING EQUIPMENT

American Radiator Company, 104 West 42nd Street, New York City.

Ideal Water Tube Boilers. Booklet. 7¾ x 10½ in. 32 pp. Illustrated. Complete data on a valuable line of boilers of the water-tube type.

Ideal Arcola Radiator Warmth. Brochure. 6¼ x 9¼ in. Illustrated. Deals with the use of radiators in domestic buildings.

Ideal Type "A" Heat Machine. Booklet. 7¾ x 10½ in. 32 pp. Illustrated. A brochure on heating apparatus for residences.

Ideal Smokeless Boilers. Catalog. 7¾ x 10½ in. Illustrated. Fully explains a boiler free from the objection of causing smoke.

Ideal Arco Round Boiler. Vecto (small homes, garages and other small detached buildings).

Ideal Boilers for Oil Burning.

Bryant Heater & Mfg. Co., The, 962 East 72nd St., Cleveland, O.

Hand Book on Water Heating by Gas. 8½ x 11 in. 16 pp. Illustrated. Bryant Gas Boilers. Bulletin 309, for AIA File No. 29 D2. Contains valuable information on hot water, steam and vapor heating; data to determine quickly the size of heating plant for any building; also dimensions, weights, fittings furnished and other data of interest. Other descriptive literature available. Comprehensive handbook in preparation.

Hand Book on House Heating by Gas. 8½ x 11 in. 8 pp. Illustrated. Bryant Automatic Hot Water Storage Systems. Bulletin 308, for AIA File No. 30 C1. Contains complete information on water heating systems, weights, dimensions, etc. Other descriptive material available. Comprehensive handbook in preparation.

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

Gasteam. Catalog. 6 x 9 in. 16 pp. Illustrated. New radiator using gas for fuel.

C. A. Dunham Company, 230 East Ohio Street, Chicago, Ill.

Dunham Radiator Trap. Bulletin 101. 8 x 11 in. 12 pp. Illustrated. Explains working of this detail of heating apparatus.

Dunham Packless Radiator Valves. Bulletin 104. 8 x 11 in. 8 pp. Illustrated. A valuable brochure on valves.

Dunham Return Heating System. Bulletin 109. 8 x 11 in. Illustrated. Covers the use of heating apparatus of this kind.

HEATING EQUIPMENT—Continued

Dunham Vacuum Heating System. Bulletin 110. 8 x 11 in. 12 pp. Illustrated.

Excelso Specialty Works, 119 Clinton St., Buffalo, N. Y.

Excelso Water Heater. Booklet. 12 pp. 3 x 6 in. Illustrated. Describing the new Excelso method of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)

The Fulton Company, Knoxville, Tenn.

Sylphon Temperature Regulators. Bulletin T-103. 8½ x 11 in. 16 pp. Complete data on Sylphon temperature regulators for air and liquids. Catalog 100, complete line Sylphon Heating Specialties.

Damper Regulators. Air and Vent Valves. Catalog No. 100. 3¾ x 6¼ in. Sylphon Damper Regulators for steam, hot water and vapor systems. Sylphon Air and Vent Valves.

Illinois Engineering Co., Racine Ave., at 21st St., Chicago, Ill.

Vapor Heat Bulletin 21. 8½ x 11 in. 32 pp. Illustrated. Contains new and original data on Vapor Heating. Rules for computing radiation, pipe sizes, radiator tappings. Steam table showing temperature of steam and vapor at various pressures, also description of Illinois Vapor Specialties.

International Heater Company, Utica, N. Y.

New International Economy Smokeless Boiler. Catalog, Form 1751-F. Copy will be sent on request.

Johnson Service Company, 149 Michigan St., Milwaukee, Wis.

Regulation of Temperature and Humidity. Booklet. 11¼ x 8½ in. 64 pp. Illustrated. Describes Johnson system of pneumatic, automatic regulation of temperature and humidity, and illustrates thermostats, valves, air compressors, dampers and other parts.

Johnson Electric Thermostats, Valves and Controllers. Booklet. 6⅛ x 3½ in. 24 pp. Illustrated. Excellent plates showing electric thermostats and controllers.

Kelsey Heating Company, James St., Syracuse, N. Y.

Booklet No. 5, 4 x 9 in. 32 pp. Illustrated. A dealers' booklet showing the Kelsey Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended and shows the mechanical and gravity systems of heating homes, churches and schools.

Monroe Pipeless Booklet. 4½ x 8 in. 20 pp. Illustrated.

Monroe Tubular Heater. Booklet. 4½ x 8 in. 20 pp. Illustrated. General Booklet giving capacities, dimensions, weights, etc.

Syracuse Pipeless Booklet. 4½ x 8 in. 12 pp. Illustrated. General Booklet giving sizes and capacities.

Kewanee Boiler Co., Kewanee, Ill.

Kewanee on the Job. Catalog. 8½ x 11 in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.

Catalog No. 78, 6 x 9 in. Illustrated. Describes Kewanee Firebox Boilers with specifications and setting plans.

Catalog No. 79. 6 x 9 in. Illustrated. Describes Kewanee power boilers and smokeless tubular boilers with specifications.

Mueller Co., Decatur, Ill.

Catalog G, 8 x 11 in., 316 pages. Profusely illustrated. Contains full data on plumbing, water and gas brass goods, including valves, faucets, traps, regulators, built-in bath equipment, and automatic systems of hot water control. Complete details are presented with a number of data sheets showing roughing-in-measurements for built-in bath equipment.

Nash Engineering Company, South Norwalk, Conn.

No. 37. Devoted to Jennings Hytor Return Line Vacuum Heating Pumps, electrically driven, and supplied in standard sizes up to 300,000 square feet equivalent direct radiation.

No. 16. Dealing with Jennings Hytor Air Line Heating Pumps.

No. 17. Describing Jennings Hytor Condensation Pumps, sizes up to 70,000 square feet equivalent direct radiation.

No. 25. Illustrating Jennings Return Line Vacuum Heating Pumps. Size M, for equivalent direct radiation up to 5,000 square feet.

National Radiator Company, Johnstown, Pa.

Aero Radiators; Beauty and Worth. Catalog 34. Booklet 6 x 9 in., 20 pp., describing and illustrating radiators and accessories.

Richardson & Boynton Company, New York City.

Richardson Round Smokeless Boilers. Booklet. 8 x 10½ in. Illustrating and describing boilers for burning soft coal economically and without smoke or soot.

The Thatcher Company, 39-41 St. Francis St., Newark, N. J.

Boilers—Boiler Catalog 4¾ x 8, 80 pages illustrated. Explains the advantages and installation of Thatcher Boilers. Includes:
Round Boilers, steam and hot-water.
Sectional end-feed steam and hot-water.
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Hot-water supply Heaters, Garage Heaters.

Furnaces—Furnace Catalog 4¾ x 8, 24 pages, illustrated. Describes the merits of Thatcher Furnaces and their economical fuel consumption. Includes:
Celebrated Thatcher Tubular Furnaces.
Meteor Pipe and Pipe-less Furnaces.
Smokeless Furnaces and School-room Heaters.

Trane Co., The, La Crosse, Wis.

Bulletin 14. 16 pp. 8½ x 10⅝ in. Cover the complete line of Trane Heating Specialties, including Trane Bellows Traps, and Trane Bellows Packless Valves.

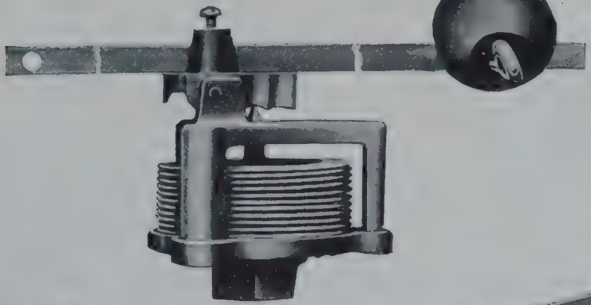
Bulletin 20. 24 pp. 8½ x 10⅝ in. Explains in detail the operation and construction of Trane Condensation, Vacuum, Booster, Circulating, and similar pumps.

Utica Heater Company, Utica, N. Y.

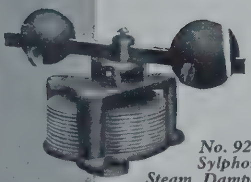
Imperial Round and Square Boilers and Supplies. Catalog. 3½ x 6½ in. Gives complete data on small heaters.

Special Folders. 8½ x 11 in. "Warmth and Comfort," describing the scientifically correct NEW IDEA pipeless furnaces. "SUPERIOR Warm Air Pipe Furnaces," a standard line of heating equipment for over forty years. "SUPER-SMOKELESS Pipe and Pipeless Furnaces," a new and remarkably efficient warm air heater, burning cheap soft coal without smoke—utilizing the principle of the Bunsen Burner.

These 26 leading Boiler Manufacturers all use Sylphon Damper Regulators as Standard Equipment



No. 22—Sylphon Damper Regulator for low pressure steam boilers



No. 924 Sylphon Steam Damper Regulator, extra sensitive type

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- Keystone
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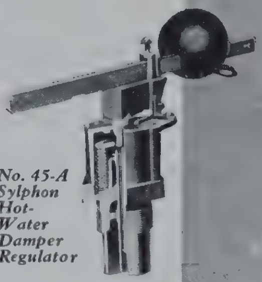
- L-O
- Novelty
- National
- Oil City
- Otis-Sawyer-Economy
- Pierce-Pebco
- Richardson
- Richmond
- Ross
- Star
- Thatcher
- West Coast



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Because they have found that no damper regulator will last as long or regulate so positively and accurately as Sylphon Damper Regulators.

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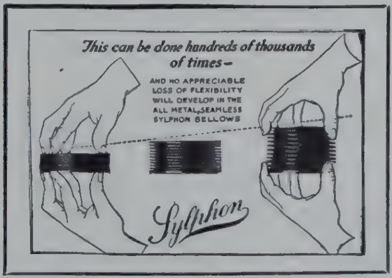
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INTERNATIONAL ECONOMY

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BIRCHFIELD

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 90*

HEATING EQUIPMENT—Continued

Utica Imperial SUPER-SMOKELESS Boiler. Catalog. 8½ x 11 in. Consists of the following seven bulletins, either loose or bound together: (1) School Heating Bulletin. (2) Public Building Bulletin. (3) Theater Heating Bulletin. (4) Churches and Religious Institutions. (5) Residences, Apartments and Hotels. (6) Offices, Industrial Buildings and Garages. (7) Technical Bulletin describing patented Bunsen Burner design and construction of the SUPER-SMOKELESS BOILER, which burns the cheapest grades of soft coal smokelessly and operates equally well with hard coal, coke or fuel oil.

HEAT REGULATORS—See Heating Equipment

HEATING AND VENTILATING

Thatcher Furnace Co., 39-41 St. Francis St., Newark, N. J.

Thatcher Heating and A Few Installations, 25 pp. 6 x 9 in. Illustrated. Contains photos of various types of buildings in which Thatcher Heaters are installed together with cuts and description of Thatcher Heaters.

History of Heat. 15 pp. 8 x 5 in. Illustrated. Tracing the evolution of heat from its earliest stages.

HOISTS—See Ash Hiosts

HOLLOW TILE—See Tile, Hollow

HOSPITAL EQUIPMENT

The International Nickel Company, 67 Wall St., New York, N. Y.

Hospital Applications of Monel Metal. Booklet. 8½ x 11½ in. 16 pp. Illustrated. Gives types of equipment in which Monel Metal is used, reasons for its adoption, with sources of such equipment.

The Kny-Scheerer Corporation of America, 119 Seventh Ave., New York.

Hospital Equipment, 16th Edition. 7¼ x 10½ in. 232 pp. Illustrated. Complete description of Hospital and Surgical Furniture, Hospital Appliances including Operating Tables, Cabinets, Sterilizers for Water, Dressing and Instruments, also Hydrotherapeutic Apparatus.

Surgical Sundries. Second Edition. Booklet. 7⅜ x 10½ in. 48 pp. Illustrated. A complete line of glassware, enamelware, rubber goods, restraint apparatus, instrument sterilizers, sputum cups, wheel chairs and sick room comforts.

Electro-Medical. 25th Edition. Booklet. 7¼ x 10½ in. 160 pp. Illustrated. A complete line of Albee Bone Sets, Apparatus for AC and DC, Cystocopes, Heat Magnets, Vibrators, Compressors, Electric Light Baths, High Frequency Apparatus and X-Ray Apparatus and Accessories.

INCINERATORS

The Kerner Incinerator Company, 1029 Chestnut St., Milwaukee, Wis.

The Kernerator. Booklet. 5½ x 9¼ in. 40 pp. Illustrated. Describes principle and design of the Kernerator, guarantee and service, also gives illustrations of buildings where it has been installed, and testimonials.

Sanitary Elimination of Household Waste. Booklet. 4 x 9 in. 16 pp. Illustrated. Shows process, installations and advantages of the Kernerator.

Sanitary Disposal of Waste in Hospitals. Booklet. 4 x 9 in. 12 pp. Illustrated. Shows how this necessary part of hospital service can be taken care of by the Kernerator.

INSULATION

Armstrong Cork & Insulation Co., Pittsburgh, Pa.

Corkboard Insulation. Brochure. 6¼ x 9¼ in. Illustrated. Fully discusses properties of corkboard and its uses in insulation of cold storage rooms, refrigerators, residences, apartment houses.

Armstrong Cork & Insulation Co., Pittsburgh, Pa.

Nonpareil Cork Covering. Booklet 48 pp. 7½ x 10½ in. Illustrated. Complete treatment of cold pipe installation.

Filing Folder for Pipe Covering Data. Made in accordance with A. I. A. rules.

Insulation of Dwellings with Armstrong's Corkboard, 7 x 10⅝ in. 40 pages. Illustrated.

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.

Specifications and Working Details. Booklet. 7¾ x 10½ in. Illustrated. Contains plainly written instructions for the use of stucco, stucco base, plaster base and insulation base.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Philip Carey Co., The, Cincinnati, Ohio.

Carey Asbestos and Magnesia Products. Catalog. 6 x 9 in. 72 pp. Illustrated.

Celotex Company, The, 645 N. Michigan Ave., Chicago, Ill.

The Hidden Comfort of Costly Homes. Booklet 8½ x 11 in.

Celotex Specifications. Booklet 8½ x 11 in.

Johns-Manville, Inc., Madison Ave. and 41st St., New York, N. Y.

Johns-Manville Service to Power Users. Catalog. 8½ x 11 in. 150 pp. Illustrated. Contains valuable data on all forms of insulation, packages, steam traps, high temperature cements, brake locks and linings, also general technical data.

United States Mineral Wool Co., 280 Madison Ave., New York.

The Uses of Mineral Wool in Architecture. Booklet. 5¼ x 6⅝ in. 24 pp. Illustrated. Describes properties of mineral wool as insulation against heat, frost, sound. Specifications and section drawing for use as a fireproofing. Rules for estimate and cost.

KITCHEN EQUIPMENT

Standard Gas Equipment Corporation, 18-20 East 41st Street, New York, N. Y.

VULCAN Gas Ranges and Appliances. Booklet. 5 x 8 in. 50 pp. Illustrated. Describes complete line, including VULCAN SMOOTH TOP Compact Cabinet Gas Ranges for kitchens in the home.

VULCAN Gas Equipment for Hotels, Hospitals, Restaurants, etc. Booklet. 5 x 8 in. 45 pp. Illustrated. Equipment for heavy-duty cooking requirements, with information of value to architects in planning kitchens.

KITCHEN EQUIPMENT—Continued

The International Nickel Company, 67 Wall St., New York, N. Y.

Hotels, Restaurants and Cafeteria Applications of Monel Metal. Booklet. 8½ x 11 in. 32 pp. Illustrated. Gives types of equipment in which Monel Metal is used, with service data and sources of equipment.

Mueller Co., Decatur, Ill.

Catalog G, 8 x 11 in., 316 pages. Profusely illustrated. Contains full data on plumbing, water and gas brass goods, including valves, faucets, traps, regulators, built-in bath equipment, and automatic systems of hot water control. Complete details are presented with a number of data sheets showing roughing-in-measurements for built-in bath equipment.

Pick & Company, Albert, 208 W. Randolph St., Chicago, Ill.

School Cafeteria. Portfolio. 17 x 11 in. 44 pp. Illustrated. An exhaustive study of the problems of school feeding, with copious illustrations and blue prints. Very valuable to the architect.

School Cafeterias. Booklet. 9 x 6 in. Illustrated. The design and equipment of school cafeterias with photographs of installation and plans for standardized outfits.

Kitchen Equipment. Booklet. 9 x 6 in. Illustrated. Photographs and descriptions of Hotel, Club and Hospital kitchens with treatise on plans and equipment of efficient kitchens.

Electric Kitchen Equipment. Booklet. 8½ x 11½ in. Illustrated. Photographs and descriptions of PIX "Master-Made" ranges, ovens, etc., for Hotels and Restaurants.

Hotel, Apartment Building, Club and Institution Installations. Portfolio. 17 x 11 in. 100 pp. Shows, mostly by plates, how the Albert Pick Company equips hotels completely from top to bottom.

Equipment for Cafeterias, Lunch Rooms, Restaurants, and Dining Rooms. Portfolio. 17 x 11 in. 86 pp. Illustrated. The last word in Cafeteria equipment to meet all requirements.

The Thatcher Company, 39-41 St. Francis St., Newark, N. J.

Ranges—Range Catalog 4¾ x 8, 24 pages illustrated. A brochure of all Thatcher Ranges. Includes:
Twin-fire combination Coal and Gas Ranges.
Single and Double-oven Coal Ranges.
Thatcher Enameled Gas Ranges.
Mascot Ship Ranges and Laundry Heaters.

LABORATORY EQUIPMENT

Kewaunee Manufacturing Company, 141 Lincoln St., Kewaunee, Wis.

Kewaunee Book of Laboratory Furniture. Catalog. 7 x 10 in. 408 pp. Illustrated. Science and Vocational Laboratory Furniture for schools, colleges, technical institutes, hospitals, etc., including floor plans, illustrations of buildings and equipped laboratories, illustrations of equipment engineering data for mechanical ventilation and illustrations of special plumbing fixtures for laboratory use. A supplement is also issued for this work.

LANTERNS

Todhunter, Arthur, 414 Madison Ave., New York.

Hand Wrought Lanterns. Booklet. 5¼ x 6¼ in. 20 pp. Illustrated in Black and White. With price list. Lanterns appropriate for exterior and interior use, designed from old models and meeting the requirements of modern lighting.

LATH, METAL AND REINFORCING

The General Fireproofing Company, Youngstown, Ohio.

Herringbone Metal Lath Handbook. 8½ x 11 in. 32 pp. Illustrated. Standard specifications for Cement Stucco on Herringbone.

Rigid Metal Lath and interior plastering.

Milwaukee Corrugating Co., Milwaukee, Wis.

The Milcor Manual. Booklet 8½ x 11 in. 64 pp. Illustrated. Covers Milcor methods and materials, metal lath, corner beads, steel domes, channels, etc.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Northwestern Expanded Metal Co., 1234 Old Colony Building, Chicago, Ill.

Northwestern Expanded Metal Products. Booklet. 8½ x 10¾ in. 16 pp. Fully illustrated, and describes different products of this company, such as Kno-burn metal lath, 20th Century Corrugated, Plaster-Sava and Longspan lath channels, etc.

LAUNDRY CHUTES

The Pfaudler Company, 217 Cutler Building, Rochester, N. Y.

Pfaudler Glass-Lined Steel Laundry Chutes. Booklet. 5⅛ x 7⅜ in. 16 pp. Illustrated. A beautifully printed brochure describing in detail with architects' specifications THE PFAUDLER GLASS LINED STEEL LAUNDRY CHUTES. Contains views of installations and list of representative examples.

LIGHTING EQUIPMENT

Curtis Lighting, Inc., Chicago, Ill.

Catalog 393. 8 x 10 in. 34 pp. Illustrated. Describes and illustrates X-Ray reflectors for show cases and windows, and lighting fixtures for interior illumination of stores.

Curtis Lighting, Inc., 1119 West Jackson Boulevard, Chicago, Ill.

Lighting Specifications.—A. I. A. File 31 F. Looseleaf. 8½ x 11 in. Architectural detail plates on church, restaurant and home lighting. Complete details, illustrations and helpful ideas on direct and indirect illumination. Sent free to any registered architect who requests them on his own letterhead.

Pittsburgh Reflector Co., Pittsburgh, Pa.

Cove Lighting. Booklet. 8½ x 11 in. 24 pp. Gives complete data on lighting of this type.

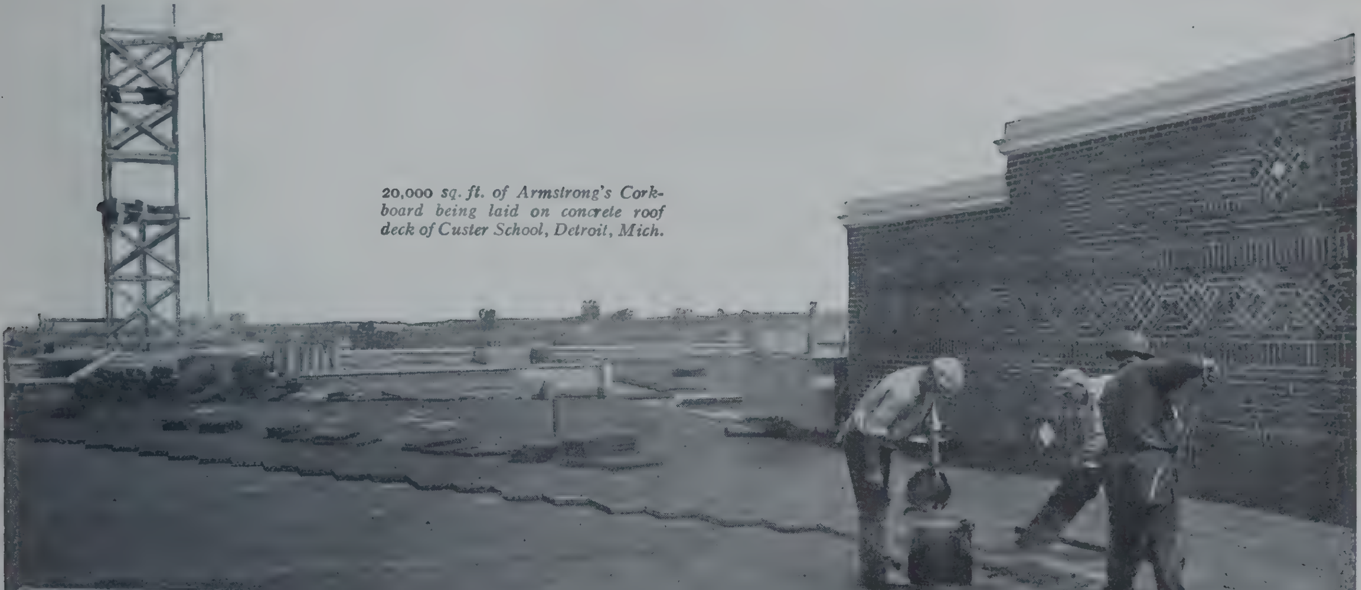
Show Window Lighting. Booklet. 8½ x 11 in. 28 pp. A most useful work on lighting these important areas.

LOCKERS

Hart & Hutchinson Company, The, New Britain, Conn.

Steel Lockers, Cabinets and Partitions. Catalog, 8 x 11 in. 16 pp. of complete line of steel partitions, lockers and cabinets for different household and business purposes.

EVERY ROOF NEEDS INSULATION



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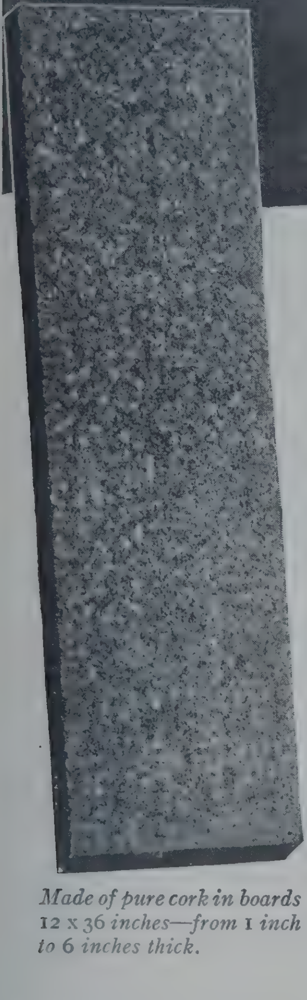

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Top floors are hard to heat in winter because too much heat goes *out* through the roof. They are hot in summer because too much heat comes *in*. By insulating the roof with Armstrong's Corkboard the flow of heat can be virtually stopped and top floors made as comfortable as the floors below.

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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 92*

MAIL CHUTES

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet. 4 x 9¼ in. 8 pp. Illustrated.

MANTELS

Arthur Todhunter, 414 Madison Avenue, New York, N. Y.

Georgian Mantels. New Booklet. 24 pp. 5¼ x 6¼ in. A fully illustrated brochure on eighteenth century mantels. Folders give prices of mantels and illustrations and prices of fireplace equipment.

MARBLE

The Georgia Marble Company, Tate, Ga. New York Office, 1328 Broadway.

Why Georgia Marble is Better. Booklet. 3⅜ x 6 in. Gives analysis, physical qualities, comparison of absorption with granite, opinions of authorities, etc.

Convincing Proof. Booklet. 3⅜ x 6 in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.

METAL LATH—See Lath, Metal and Reinforcing

METALS

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.

Reference Book. Pocket Ed. 2½ x 4½ in. 168 pp. Illustrated. Covers the complete line of Sheet and Tin Mill Products.

Apollo and Apollo-Keystone Galvanized Sheets. Catalog. 8½ x 11 in. 20 pp. Illustrated.

Research on the Corrosion Resistance of Copper Steel. Booklet. 8½ x 11 in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.

Chase Metal Works, Waterbury, Conn.

How to Order Brass. Booklet. 8⅛ x 5½ in. Illustrated. Tells just how to order brass—about alloys, tempers, tolerances most suitable for various uses. Warns against the usual mistakes and troubles in ordering. Contains complete tables of alloys, tempers, tolerances, uses, etc.

Chase Diamond Booklet. 11⅞ x 9 in. 8-16 pp. Illustrated. Periodical house organ issued once a month or so. Contains articles, pictures, news items of interest to customers, employes and brass industry in general. Ask to be put on the mailing list.

The International Nickel Company, 67 Wall St., New York, N. Y.

The Choice of a Metal. Booklet. 6¼ x 3¼ in. 16 pp. Illustrated. Monel Metal—its qualities, use and commercial forms, briefly described.

METAL TRIM—See Doors and Trim, Metal

MILL WORK—See also Wood

Curtis Companies Service Bureau, Clinton, Iowa.

Architectural Interior and Exterior Woodwork. Standardized. Book. 9 x 11½ in. 240 pp. Illustrated. This is an Architects' Edition of the complete catalog of Curtis Woodwork, as designed by Trowbridge & Ackerman. Contains many color plates.

Better Built Homes, Vols. XV-XVIII incl. Booklet. 9 x 12 in. 40 pp. Illustrated. Designs for houses of five to eight rooms, respectively, in several authentic types, by Trowbridge & Ackerman, architects for the Curtis Companies.

Curtis Details. Booklet. 19½ x 23½ in. 20 pp. Illustrated. Complete details of all items of Curtis woodwork, for the use of architects.

Roddis Lumber & Veneer Company, Marshfield, Wis.

Roddis Doorman. Booklet. 10¼ x 7¼ in. 12 pp. Illustrated. Describes and illustrates the use of Roddis Doors for residences, clubs, hotels, etc.

Hartmann-Sanders Company, 2155 Elston Ave., Chicago, Ill.

Column Catalog. 7½ x 10 in. 48 pp. Illustrated. Contains prices on columns 6 to 36 in. diameter, various designs and illustrations of columns and installations.

The Pergola Catalog. 7½ x 10 in. 64 pp. Illustrated. Contains illustrations of pergola lattices, garden furniture in wood and cement, garden accessories.

MORTAR COLORS

Clinton Metallic Paint Co., Clinton, N. Y.

Clinton Mortar Colors. Folder. 8½ x 11 in. 4 pp. Illustrated in color, gives full information concerning Clinton Mortar Colors with specific instructions for using them.

Color Card. 6½ x 3¼ in. Illustrates in color the ten shades in which Clinton Mortar Colors are manufactured.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

Cabot, Inc., Samuel, Boston, Mass.

Cabot's Creosote Stains. Booklet. 4 x 8½ in. 16 pp. Illustrated.

Eagle-Picher Lead Company, The, 208 S. La Salle St., Chicago, Ill.

Specifications for Painting Structural Steel and Iron. Booklet. 9½ x 11½ in. 7 pp. Not illustrated. A set of specifications which embody the latest development in this field as revealed by the research department of The Eagle-Picher Lead Company in the light of their eighty-one years' experience, enclosd in folder 13 x 2 in., ready for filing.

Fighting Rust with Sublimed Blue Lead. Book. 80 pp. Illustrated. 5½ x 8½ in. An excellent addition to one's technical library, well bound in a stiff cover. An assemblage of scientific facts concerning the theory of corrosion of iron and steel and the prevention of rust with Sublimed Blue Lead.

Chemical Analysis of Lead and Its Compounds. Book. 5½ x 8½ in. 160 pp. Illustrated. A treatise on the latest methods of analysis adopted by the leading laboratories which must examine lead and its compounds from an analytical standpoint.

Lead Tree Chart, 9 x 11½ in. 1 p. Framed Chart. Not illustrated. A chart reflecting all the uses of lead, from crude ore to the finished products.

Zinc Tree Chart. 9 x 11½ in. 1 p. Framed Chart. Not illustrated. A chart reflecting all the uses of zinc, from the ore to the finished product.

Rust-proofing Pamphlet. 3 x 5 in. 16 pp. Illustrated. Of interest to anyone connected in any way with steel construction.

PAINTS, STAINS, VARNISHES & WOOD FINISHES—Continued

The Glidden Company, Cleveland, Ohio.

More Daylight. 8 x 10½ in. 20 pp. Portraying by illustrations and text the need and methods of modern mill painting.

Glidden Specification Book. 8 x 10¼ in. 12 pp. Complete architectural specifications for Glidden Paints and Varnishes, including Ripolin. Directions for the proper finishing of wood, metal, plaster, concrete, brick and other surfaces.

Martin Varnish Co., 2500 Quarry St., Chicago, Ill.

Architectural Specifications. Booklet. 8½ x 11 in. 20 pp. Illustrated. Complete guide for Architects in specifying Martin Varnish Products.

Your Floors. Booklet. 5 x 7 in. 20 pp. Illustrated. Explains fully how to finish all kinds of floors and woodwork with Martin's Pure Varnish.

Devoe & Raynolds Co., Inc., 101 Fulton Street, New York.

Architects' Paint & Varnish Manual, containing in concrete form architects' educational letters.

National Lead Company, 111 Broadway, New York, N. Y.

Handy Book on Painting. Book. 5½ x 3¼ in. 100 pp. Gives directions and formulæ for painting various surfaces of wood, plaster, metals, etc., both interior and exterior.

Red Lead in Paste Form. Booklet. 6¼ x 3½. 16 pp. Illustrated. Directions and formulæ for painting metals.

Came Lead. Booklet. 8¾ x 6 in. 12 pp. Illustrated. Describes various styles of lead cames.

Cinch Anchoring Specialties. Booklet. 6 x 3½ in. 20 pp. Illustrated. Describes complete line of expansion bolts.

New Jersey Zinc Company, 160 Front St., New York, N. Y.

Zinc as a Paint Pigment. Technical Treatise on the subject, with illustrations and reports of tests, 24 pp. 6 x 9 in.

Mapaz No. 1 Painting Handbook. Pocket size combination handbook and note book containing valuable information on Zinc Oxide and its use in paint. Other data of interest to architects, including lace stencils, color formulæ, etc.

The Ripolin Company, Cleveland, Ohio.

Ripolin Specifications. Book. 8 x 10¼ in. 12 pp. Complete specifications and general instructions for the application of Ripolin, the original Holland enamel paint. Also directions for proper finishing of wood, metal, plaster, concrete, brick and other surfaces.

Why Ripolin Has an International Reputation. 8 x 10¾ in. 24 pp. Designed for the architect's files to illustrate the many varied uses of Ripolin Enamel Paint in all parts of the world. Profusely illustrated.

Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.

Preservative Coating. Booklet. 6 x 9 in. 15 pp. Illusrtated. Presents in a concise manner the properties and uses of the Ruberoid Company's various paint preparations.

Sherwin-Williams Company, 601 Canal Rd., Cleveland, Ohio.

Painting Concrete and Stucco Surfaces. Bulletin No. 1. 8½ x 11 in. 8 pp. Illustrated. A complete treatise with complete specifications on the subject of Painting of Concrete and Stucco Surfaces. Color chips of paint shown in bulletin.

Enamel Finish for Interior and Exterior Surfaces. Bulletin No. 2, 8½ x 11 in. 12 pp. Illustrated. Thorough discussion, including complete specifications for securing the most satisfactory enamel finish on interior and exterior walls and trim.

Painting and Decorating of Interior Walls. Bulletin No. 3. 8½ x 11 in. 20 pp. Illustrated. An excellent reference book on Flat Wall Finish, including texture effects, which are taking the country by storm. Every architect should have one on file.

Protective Paints for Metal Surfaces. Bulletin No. 4. 8½ x 11 in. 12 pp. Illustrated. A highly technical subject treated in a simple, understandable manner.

Sonneborn Sons, Inc., L., Dept. 4, 116 Fifth Avenue, New York.

Paint Specifications. Booklet. 8½ x 10¼ in. 4 pp.

PANELING—See Millwork

PARTITIONS

Empire Steel Partition Co., College Point, N. Y.

Steel office partitions. Write for further information and Folder No. 4.

Hauserman Company, E. F., Cleveland, Ohio

Hollow Steel Standard Partitions. Various folders, 8½ x 11. Illustrated. Give full data on different types of steel partitions, together with details, elevations and specifications.

Improved Office Partition Company, 25 Grand St., Elmhurst, L. I.

Telesco Partition. Catalog. 8¼ x 11 in. 14 pp. Illustrated. Shows typical offices laid out with Telesco partitions, cuts of finished partition units in various woods. Gives specifications and cuts of buildings using Telesco.

Detailed Instructions for erecting Telesco Partitions. Booklet. 24 pp. 8½x11 in. Illustrated. Complete instructions, with cuts and drawings, showing how easily Telesco Partition can be erected.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Partitions. Booklet. 7 x 10 in. 32 pp. Illustrated. Describes complete line of track and hangers for all styles of sliding, parallel, accordion and flush door partitions.

U. S. Gypsum Co., Chicago.

Pyrobar Partition and Furring Tile. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes use and advantages of hollow tile for inner partitions.

PIPE

American Brass Company, Waterbury, Conn.

Bulletin B-1. Brass Pipe for Water Service. 8½ x 11 in. 28 pp. Illustrated. Gives schedule of weights and sizes (I.P.S.) of seamless brass and copper pipe, shows tpical installations of brass pipe, and gives general discussion of the corrosive effect of water on iron, steel and brass pipe.

Chase Metal Works, Waterbury, Conn.

Why Brass Pipe. Booklet. 6¼ x 3⅜ in. 6 pp. Small pamphlet showing advantages of brass pipe in concise form, together with table of standard sizes and weights.

Clow is Moving Into the World's Largest Plumbing Plant

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Three large buildings, modern and roomy have been specially fitted for the efficient carrying on of Clow's plumbing business. The total length of the entire plant is 724 feet—width is 147 feet—total ground floor space is over 80,000 square feet.

Storage and shipping facilities are beyond parallel. For example, the capacity of the new steel and wrought iron pipe warehouse is 3500 tons. The switch track accommodates ten cars. And, twelve trucks can be loaded simultaneously.

With these, and the many other facilities that the new plant affords, the Clow organization hopes to make even better the service which has been synonymous with the name Clow for the past forty-eight years.

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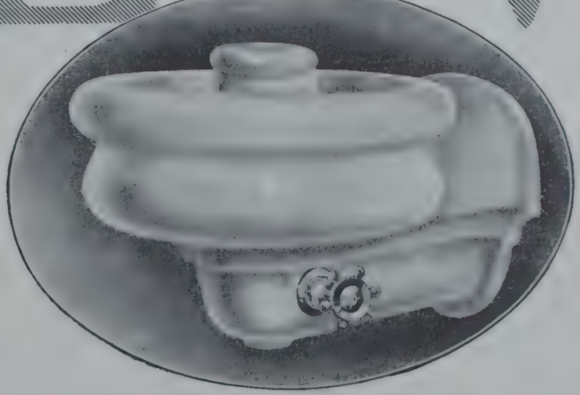

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 94*

PIPE—Continued

Clow & Sons, James B., 534 S. Franklin St., Chicago, Ill.
Catalog "A." 4 x 6½ in. 700 pp. Illustrated. Shows a full line of steam, gas and water works supplies.

National Tube Co., Frick Building, Pittsburgh, Pa.
"National" Bulletin No. 2. Corrosion of Hot Water Pipe. (8½ x 11 in. 24 pp.) Illustrated. In this bulletin is summed up the most important research dealing with hot water systems. The text matter consists of seven investigations by authorities on this subject.
"National" Bulletin No. 3. The Protection of Pipe Against Internal Corrosion (8½ x 11 in. 20 pp.) Illustrated. Discusses various causes of corrosion, and details are given of the deactivating and deaerating systems for eliminating or retarding corrosion in hot water supply lines
"National" Bulletin No. 25. "National" Pipe in Large Buildings. 8½ x 11 in. 88 pp. This bulletin contains 254 illustrations of prominent buildings of all types, containing "National" Pipe and considerable engineering data of value to architects, engineers, etc.
Modern Welded Pipe. Book of 88 pp. (8½ x 11 in.), profusely illustrated with halftone and line engravings of the important operations in the manufacture of pipe.

Reading Iron Company, Reading, Pa.
Reading Genuine Wrought Iron Pipe in the Making and in Service. Bulletin No. 1. 8½ x 11 in. 32 pp. Illustrated. History of the Reading Iron Company. Origin of wrought iron—description of each process of manufacture of both buttweld and lapweld pipe—Reading Pipe in various fields.
Book of Standards. Booklet. 5 x 7 in. 48 pp. Illustrated. Complete tables showing dimensions, tests and list price on each of the 552 different kinds of Reading Tubular goods Two simple tests for distinguishing genuine wrought iron pipe.
The Painted Molecule. Booklet. 4 x 9 in. 8 pp. Illustrated. A brief, non-technical description of the reasons for the longer life of Reading Iron Pipe, with instances of actual service.
The Ultimate Cost. Booklet. 5¼ x 7¼ in. 24 pp. Illustrated in two colors. A comparison in actual figures of the initial cost and the ultimate cost of plumbing and heating systems in several kinds of homes.

Grinnell Company, 285 West Exchange Street, Providence, R. I.
Grinnell Bulletin Booklet. 10½ x 7¾ in. Illustrated. Issued monthly. Describes and illustrates the different Grinnell products.

PLUMBING EQUIPMENT

American Brass Company, Waterbury, Conn.
Benedict Nickel. Illustrated pamphlet descriptive of Benedict Nickel White Metal for high grade plumbing fixtures.

Brunswick-Balke-Collender Co., 623 S. Wabash Ave., Chicago, Ill.
Whale-bone-ite Seat. Booklet. 3½ x 6¼ in. 4 pp. Illustrated.

Clow & Sons, James B., 534 S. Franklin Street,, Chicago, Ill.
Catalog "M." 9¼ x 12 in. 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools, Railroads and Industrial Plants.

Crane Company, 836 S. Michigan Avenue, Chicago, Ill.
Crane Products in World Wide Use. Catalog. 5 x 9½ in. 24 pp. Illustrated.
Plumbing Suggestions for Home Builders. Catalog. 3 x 6 in. 80 pp. Illustrated.
Plumbing Suggestions for Industrial Plants. Catalog. 4 x 6½ in. 43 pp. Illustrated.

Douglas Co., The John, Cincinnati, Ohio.
Catalog "C." 10½ x 8 in. 200 pp. Illustrated. Illustrates and describes the Douglas complete line of China Sanitary plumbing fixture.
Booklet. Douglas Suggests for your Home. 6 x 3½ in. 39 pp. Illustrated.

Eljer Company, Fort City, Pa.
Complete Catalog. 3¾ x 6¾ in. 104 pp. Illustrated. Describes fully the complete Eljer line of standardized vitreous china plumbing fixtures, with diagrams, weights and measurements.
Standardized Sixteen Circular. 3¾ x 6¾ in. 18 pp. Illustrated.

Kohler Co., Kohler, Wis.
Catalog F. 7½ x 10⅝ in. 216 pp. Illustrates and describes the complete line of Kohler trade-marked plumbing ware.
Roughing-In Measurement Binder. 5 x 8 in., containing loose leaf sheets on all staple fixtures.

Maddock's Sons Company, Thomas, Trenton, N. J.
Catalog K. 10⅞ x 7⅛ in. 242 pp. Illustrated. Complete data on vitreous china plumbing fixtures with brief history of Sanitary Pottery.

Mueller Co., Decatur, Ill.
Catalog G, 8 x 11 in., 316 pages. Profusely illustrated. Contains full data on plumbing, water and gas brass goods, including valves, faucets, traps, regulators, built-in bath equipment, and automatic systems of hot water control. Complete details are presented with a number of data sheets showing roughing-in-measurements for built-in bath equipment.

Speakman Company, Wilmington, Del.
Speakman Showers and Fixtures. Catalog. 4½ x 7½ in. 250 pp. Illustrated. Catalog of Modern Showers and Brass Plumbing Fixtures, with drawings showing layouts, measurements, etc.
Toned Up in Ten Minutes. Booklet. 7½ x 10½ in. 16 pp. Illustrated. Modern Showers and Washups for Industrial Plants, showing the sanitary method of washing in running water.

PUMPS

Chicago Pump Company, 2300 Wolfram Street, Chicago, Ill.
The Correct Pump to Use. Portfolio containing handy data. Indivdiual bulletins, 8½ x 11 in., on bilge, sewage, condensation, circulating, house, boiler feed and fire pumps.

Goulds Mfg. Co., The, Seneca Falls, N. Y.
Set of Twenty Bulletins. 7½ x 10⅝ in. 12 to 32 pp. each. Illustrated. Covers complete line of power and centrifugal pumps for all services.

PUMPS—Continued

Kewanee Private Utilities Co., 442 Franklin St., Kewanee, Ill.
Bulletin E. 7¾ x 10¼ in. 32 pp. Illustrated. Catalog. Complete descriptions, with all necessary data, on Standard Service Pumps, Indian Brand Pneumatic Tanks, and Complete Water Systems, as installed by Kewanee Private Utilities Co.

RAMPS

The Hockenbury System Incorporated, Harrisburg, Pa., for years specializing in the financing of modern community hotels, of which they have financed a hundred such throughout the United States, has expanded its service to include the financing of MOTORAMP garage buildings. They now have available for distribution an 8¾ x 11 booklet entitled: "The Hitching Post Problem Is Here Again," in which they explain their solution of the street motor parking problem, which will be sent free to inquiring architects.

Ramp Buildings Corporation, 115 Broad St., New York, N. Y.
The d'Humy Motoramp System of Building Design. Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes the d'Humy system of ramp construction for garages, service buildings, factories, warehouse, etc., where it is desirable to drive motor vehicles or industrial tractors under their own power from floor to floor.
Storage Efficiency of Multi-Floor Garages. Leaflet. 8½ x 11 in. 4 pp. Illustrated. A brief discussion of comparative storage efficiencies of elevator garages, ordinary ramp garages, and d'Humy Motoramp garages.
Visibility. Pamphlet. 8½ x 11 in. 2 pp. Illustrated. Discussion of visibility feature of d'Humy Motoramp System with reference to illustration of one particular installation.
Series of Informal Bulletins on Garage Design. Sent upon request.

REINFORCED CONCRETE—See also Construction, Concrete

The General Fireproofing Company, Youngstown, Ohio.
Self-Sentering Handbook. 8½ x 11 in. 36 pp. Illustrated. Methods and specifications on reinforced concrete floors, roofs and floors with a combined form and reinforced material.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.
National Steel Fabric. Booklet. 32 pp. 8½ x 11 in. A valuable work on the subject of concrete and its reinforcing.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.
Shearing Stresses in Reinforced Concrete Beams. Booklet. 8½ x 11 in. 12 pp.

North Western Expanded Metal Company, Chicago, Ill.
Designing Data. Book. 6 x 9 in. 96 pp. Illustrated. Covers the use of Econo Expanded Metal for various types of reinforced concrete construction.

ROOFS (INSULATED)

Holorib, Inc., 2735 Prospect Ave., Cleveland, Ohio.
Holorib Insulated Roofs. Booklet, 16 pp., 8½ x 11 ins. Gives complete data regarding a valuable line of insulated roofing materials.

ROOFING

American Brass Company, Waterbury, Conn.
Service Sheets 43-1 and 43-2, standard specifications and methods of laying copper roofings, flashings, hips, valleys, decks, gutters and leaders.

American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Better Buildings. Catalog. 8½ x 11 in. 32 pp. Describes Corrugated and Formed Sheet Steel Roofing and Siding Products, black, painted and galvanized, with directions for application of various patterns of Sheet Steel Roofing in various types of construction.
Copper—Its Effect Upon Steel for Roofing Tin. Catalog. 8½ x 11 in. 28 pp. Illustrated. Describes the merits of high-grade roofing tin plates and the advantages of the copper-steel alloy.
The Testimony of a Decade. Booklet. 8½ x 11 in. 16 pp., with Graphic Chart and illustrations showing losses to various Iron and Steel Sheets for roofing, from atmosphere corrosion.

Philip Carey Co., Lockland, Cincinnati, Ohio.
Architects Specifications for Carey Built-up Roofing. Booklet. 8 x 10¾ in. 24 pp. Illustrated. Complete data to aid in specifying the different types of built-up roofing to suit the kind of roof construction to be covered.
Carey Built-up Roofing for Modern School Buildings. Booklet. 8 x 10¾ in. 32 pp. Illustrated. A study of school buildings of a number of different kinds and the roofing materials adapted for each.

Federal Cement Tile Co., 608 So. Dearborn St., Chicago, Ill.
The Indestructible Roof. Booklet. 10 x 13 in. 32 pp. Illustrated. Illustrates and describes the installation of permanent concrete interlocking tile, tile with glass insets, flat tile and channel tile, on all types of industrial plants and other buildings with flat and pitched surfaces.
Standards. Booklet. 8½ x 11 in. 40 pp. Illustrated with full-page drawings. Gives full details of all forms of roof construction of steel structure, ridge and gutter construction, purlin arrangement, spacing, etc., for standard roofs.

Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.
Johns-Manville Building Materials. Book. 8½ x 11 in. 100 pp. Illustrated. A comprehensive catalog of various types of roofing for all forms of construction. Details of wall, floor and ceiling insulation; asbestos wood for fireproof construction; waterproofing, etc.
Johns-Manville Asbestos Shingles. Booklet. 8½ x 11 in. 24 pp. Illustrated. This booklet is profusely illustrated in colors, showing some very artistic blends of asbestos shingles with various types of architecture. Contains many valuable suggestions for the architect.

Ludowici-Celadon Company, 104 So. Michigan Ave., Chicago, Ill.
"Ancient" Tapered Mission Tiles. Leaflet. 8½ x 11 in. 4 pp. Illustrated. For architects who desire something out of the ordinary, this leaflet has been prepared. Describes briefly the "Ancient" Tapered Mission Tiles, hand-made, with full corners and designed to be applied with irregular exposures.

Milwaukee Corrugating Co., Milwaukee, Wis.
The Milcor Architectural Sheet Metal Guide. Booklet. 8½ x 11 in. 64 pp. Illustrated. Gives valuable technical sheet metal data.

MAKING THE DEADLINE

On the World's Greatest Newspaper

The City Editor reached across the desk for his P-A-X phone and quickly dialed 506. Down in the composing room, the foreman's telephone rang out insistently.

> *"Conway! Hold everything----- Special coming through----- Explosion in the________ Building! Get set for it----- Ready in two minutes!"*

A NEWSPAPER must be able to function properly and efficiently, not only under normal conditions, but to meet every emergency that may arise—and emergencies are frequent.

Often the biggest story will occur within a few minutes of the "deadline"—the zero hour in the pressroom. No one can foretell the day and hour of a big explosion or fire, the death of a public man, a railroad accident, the collapse of a building. Whenever, and however, the big story "breaks", a newspaper must be ready, —able to change its plans at an instant's notice and get the story into type.

The Chicago Tribune meets these strenuous demands through the use of P-A-X. Every hour of the day and night their 550 automatic telephones convey calls and carry information from one department to another. Reporters are summoned and ordered to the scene of a story without the loss of a moment—while editors, special writers, research workers, artists, photographers, engravers, compositors and pressroom employees step into action simultaneously,—all this to the end that the latest bit of news may appear on the breakfast tables of more than a half million readers.

Getting out a single day's issue of the Tribune requires an average of 22,506 telephone calls. All inside calls among the 550 house phones are entirely automatic. Connections between departments are made with remarkable speed, and cannot be interrupted until the call is finished. The mechanical switchboard, swiftly, accurately, and untiringly does the work of ten operators.

Nearly 2,000 organizations, in every field of industry, find P-A-X a vital necessity which actually pays for itself in a short time.

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The P-A-X is, fundamentally, a private automatic telephone exchange built of the same Strowger type of automatic telephone equipment being so widely adopted for city service. The P-A-X may be furnished to include and coordinate such services as code call, conference, executive's priority, emergency alarm, etc., to meet individual needs.

Automatic Electric Company

Home Office and Factory, CHICAGO, ILL., *Branch Offices:* New York, 21 East Fortieth St.; Cleveland, Cuyahoga Bldg. Representatives in all principal cities. *In Canada*—Northern Electric Co., Ltd., 121 Shearer St., Montreal, P. Q. *Abroad*—International Automatic Telephone Co., Norfolk House, Norfolk St., Strand, London, W. C. 2, England. *In Australia*—Automatic Telephones, Ltd., Mendes Chambers, Castlereagh St., Sydney.

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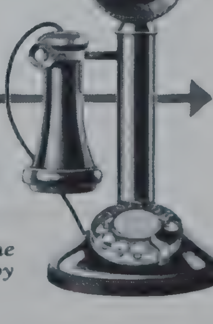

Automatic Electric Company is the originator of P-A-X and is the only organization in the United States manufacturing interior telephone equipment under this trade-mark. Its use by any other company is absolutely unauthorized.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 96*

ROOFING—Continued

National Slate Association, 791 Drexel Building, Philadelphia, Pa.

Slate Roofs. Book, 84 pages. 8½ x 11 ins. Illustrated. Just off press; most complete specificational information, practical ideas and other authoritative industry data, tables on grading, color designation, etc., on American roofing slates. Sent free to architects applying on their office stationery. To others, $1.50.

New Jersey Zinc Company, 160 Front St., New York, N. Y.

Standing Seam Horse Head Zinc Roofing. Booklet outlining the adaptability of this roofing for many types of buildings. Illustrated with sketches showing how roofing is applied. Also describes lasting qualities, appearance, etc.

Once in a Lifetime. Booklet describing conductors, gutters and standing seam roofing made from Horse Head Zinc. Contains information on their economy and durability. Illustrated.

Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.

Instructions for Laying Built-up Roofs. Booklet. 8½ x 11 in. Illustrated.

Ruberoid Strip Shingle. Booklet. 3½ x 6¼ in. 16 pp. Illustrated in color.

U. S. Gypsum Co., Chicago.

Pyrobar Roof Construction. Booklet. 8 x 11 in. 48 pp. Illustrated. Gives valuable data on the use of tile in roof construction.

Sheetrock Pyrofill Roof Construction. Folder. 8½ x 11 in. Illustrated. Covers use of roof surfacing which is poured in place.

RUGS, IMPORTED

Kent-Costikyan Trading Company, Inc., 484 Fifth Ave., New York, N. Y.

Rugs, Catalogue. 9½ x 6½ in. 56 pp. Illustrated. Illustrates and describes an unusual collection of Oriental and Occidental rugs with stock list.

SASH CHAIN

American Chain Company, Inc., Bridgeport, Conn.

American Sash Chain. Booklet. 6 x 9 in. 16 pp. Illustrated. Describes and illustrates American Sash Chain and Sash Fixtures.

Smith & Egge Mfg. Co., The, Bridgeport, Conn.

Chain Catalog. 6 x 8½ in. 24 pp. Illustrated. Covers complete line of chains.

SASH CORD

Samson Cordage Works, Boston, Mass.

Catalog. 3½ x 6¾ in. 24 pp. Illustrated. Covers complete line of rope and cord.

SCREENS

Athey Company, 6015 West 65th St., Chicago, Ill.

The Athey Perennial Window Shade. An accordian pleated window shade, made from translucent Herringbone woven Coutil cloth, which raises from the bottom and lowers from the top. It eliminates awnings, affords ventilation, can be dry-cleaned and will wear indefinitely.

The Higgin Manufacturing Co., Newport, Ky.

Your Home Screened the Higgin Way. Booklet. 8½ x 11½ in. 13 pp. Illustrated in colors. Complete description of Higgin Screens, designed to meet every need.

New Jersey Wire Cloth Co., Trenton, N. J.

A matter of Health and Comfort. Booklet. 5 x 7¾ in. 16 pp. Illustrated. Discusses quality in wire insect screen cloth.

SEWAGE DISPOSAL

Kewanee Private Utilities, 442 Franklin St., Kewanee, Ill.

Specification Sheets. 7¾ x 10¼ in. 40 pp. Illustrated. Detailed drawings and specifications covering water supply and sewage disposal systems.

SHEATHING

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.

For All Time and Clime. Booklet. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.

SHELVING-STEEL

David Lupton's Sons Company, Philadelphia.

Lupton Steel Shelving. Catalog D. Illustrated brochure, 40 pp., 8⅝ x 11 ins. Deals with steel cabinets, shelving, racks, doors, partitions, etc.

STAINS—See Paints, Varnishes, Wood Finishes

STONE, BUILDING

Indiana Limestone Quarrymen's Association, Box 766, Bedford, Ind.

Volume 3, Series A-3. Standard Specifications for Cut Indiana Limestone work, 8½ x 11 in. 56 pp. Containing specifications and supplementary data relating to the best methods of specifying and using this stone for all building purposes.

Vol. 1. Series B. Indiana Limestone Library. 6 x 9 in. 36 pp. Illustrated. Giving general information regarding Indiana Limestone, its physical characteristics, etc.

Vol. 4. Series B. Booklet. New Edition. 8½ x 11 in. 64 pp. Illustrated. Indiana Limestone as used in Banks.

Volume 5. Series B. Indiana Limestone Library. Portfolio. 11⅛ x 8¼ in. Illustrated. Describes and illustrates the use of stone for small houses with floor plans of each.

STORE FRONTS

Brasco Manufacturing Co., 5025-35 South Wabash Avenue, Chicago, Ill.

Portfolio. 8½ x 11 in. 32 pp. Illustrated. Selected examples of Brasco Copper Store Fronts suitable for different businesses and varying conditions of locations.

Catalogue 28. 8½ x 10¼ in. 20 pp. Illustrated with plates. Details of Brasco Copper Store front construction. Also showcases, ventilator sashes.

Detail Sheets. Set of five sheets giving details and suggestions for store front designing enclosed in envelope convenient for filing.

STORE FRONTS—Continued

Kawneer Co., The, Niles, Mich.

A Collection of Successful Designs. Catalog. 9¼ x 6½. in. 64 pp. Illustrated. Showing by use of drawings and photographs many types of Kawneer Solid Copper Store Fronts.

Catalog L, 1925 Edition. 8½ x 11 in. 32 pp. Illustrated. Details of copper store front construction.

Metal Store Fronts. Sheets, 17 x 22 in. Draftsmen's details of copper store fronts for use in tracing.

Zouri Drawn Metals Company, Chicago Heights, Ill.

Zouri Safety Key-Set Store Front Construction. Catalogue. 8½ x 10½in. 60 pp. Illustrated. Complete information with detailed sheets and installation instructions convenient for architects' files.

International Store Front Construction. Catalogue. 8½ x 10 in. 70 pp. Illustrated. Complete information with detailed sheets and installation instructions convenient for architects' files.

STUCCO

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.

For All Time and Clime. Booklet. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.

STUCCO BASES

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.

Specifications and Working Details. Booklet. 7¾ x 10½ in. Illustrated. Contains plainly written instructions for the use of stucco, stucco base, plaster base and insulation base.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

SWIMMING POOL EQUIPMENT

Rohmer Standard Swimming Pool Equipment, 516 Fifth Avenue, New York. Phone Murray Hill 1138. See Sweet's Catalog, pages 468-471, for details and specifications.

STUCCO, MAGNESITE

Muller & Co., Franklyn R., Waukegan, Ill.

Everlastic Magnesite Stucco. Booklet. 8½ x 11 in.

TECHNICAL PAINTING

Toch Brothers, 110 East 42nd Street, New York City.

Specifications for Dampproofing, Waterproofing, Enameling and Technical Painting. Complete and authoritative directions for use of an important line of materials.

TERRA COTTA

National Terra Cotta Society, 19 West 44th St., New York, N. Y.

Standard Specifications for the Manufacture, Furnishing and Setting of Terra Cotta. Brochure 8½ x 11 in. 12 pp. Furnishing and Setting of Terra Cotta, consisting of complete detail Specification, Glossary of Terms Relating to Terra Cotta and Short Form Specification for incorporating in Architect's Specifications.

Color in Architecture. Revised Edition. Permanently bound volume 9⅛ x 12¼ in., containing a treatise upon the basic principles of color in architectural design, illustrating early European and modern American examples. Excellent illustrations in color.

Present Day Schools. 8½ x 11 in. 32 pp. Illustrating 42 examples of school architecture with article upon school building design by James O. Betelle, A. I. A.

Better Banks. 8½ x 11 in. 32 pp. Illustrating many banking buildings in terra cotta with an article on its use in bank design by Alfred C. Bossom, Architect.

THERMOSTATS—See Heating Equipment

TILE, FLOOR AND WALL

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Information Booklet. 7½ x 10⅝ in. 24 pp. Illustrated. Ask for Booklet K-200.

A publication issued for architects, engineers and educators to acquaint them with methods of grading, derivation of sizes and shapes, variety of colors, kind of finishes, nomenclature and ingredients and processes insofar as they lead to a better understanding of the product and its uses.

Basic Specifications and Related Documents, Booklet. 7½ x 10⅝ in. 38 pp. Ask for Booklet K-300.

The Basic Specification proper gives in detail the procedure to be followed with respect to any kind of tile installation in connection with practically every type of construction. The Related Documents or work sheets are designed to call attention to optional application methods and materials.

Swimming Pools. Booklet. 8½ x 11 in. 32 pp. Illustrated. Issued for the use of architects and engineers as a handbook on swimming pools and their construction.

Bringing the Crowds to Your Market. Booklet. 8½ x 11 in. 16 pp. Illustrated in color. Shows use of tile for the modern sanitary market.

TILE, HOLLOW

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.

Standard Wall Construction Bulletin 174. 8½ x 11 in. 32 pp. Illustrated. A treatise on the subject of hollow tile wall construction.

Natco on the Farm. 8½ x 11 in. 38 pp. Illustrated. A treatise on the subject of fire safe and permanent farm building construction.

Natco Homes and Garages. Booklet. 7 x 10 in. 32 pp. Illustrated. Showing the use of Natco Hollow Tile for private residences.

VACUUM CLEANING APPARATUS

The Spencer Turbine Company, Hartford, Conn.

Vacuum Cleaning Apparatus for all purposes. Booklet. 32 pp. Illustrated. Complete information on product, showing prominent buildings equipped with this system.

The Roof *Must* Be Good!

CITIZENS BANK
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4-ply Carey Built-Up Roof used

Roof furnished by Allyn L. Burr Co., Stockton, Calif.

Designed and built by Davis-Heller-Pearce Co., *Architects, Engineers, Constructors*

THERE can be no compromise in the quality of the roof you put on a building of this character. No excuses will go.

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No matter what the type of building, there is a Carey roof that will provide the best possible protection. Ask for the new Carey Specification Book. It gives all the facts in workable detail.

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A Roof for Every Building

Carey
BUILT-UP ROOFS

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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 98*

VALVES

Crane Co., 836 S. Michigan Ave., Chicago, Ill.

No. 51. General Catalogue. Illustrated. Describes the complete line of the Crane Co.

Illinois Engineering Co., Racine Ave., at 21st St., Chicago, Ill.

Catalogue. 8½ x 11 in. 88 pp. Illustrated.

Jenkins Bros., 80 White Street, New York.

The Valve Behind a Good Heating System. Booklet 4½ x 7¼ in. 16 pp. Color plates. Description of Jenkins Radiator Valves for steam and hot water, and brass valves used as boiler connections.

Jenkins Valves for Plumbing Service. Booklet. 4½ x 7¼ in. 16 pp. Illustrated. Description of Jenkins Brass Globe, Angle Check and Gate Valves commonly used in home plumbing, and Iron Body Valves used for larger plumbing installations.

Mueller Co., Decatur, Ill.

Catalog G, 8 x 11 in., 316 pages. Profusely illustrated. Contains full data on plumbing, water and gas brass goods, including valves, faucets, traps, regulators, built-in bath equipment, and automatic systems of hot water control. Complete details are presented with a number of data sheets showing roughing-in-measurements for built-in bath equipment.

VARNISH—See Paints, Stains, Varnishes

VENETIAN BLINDS

Burlington Venetian Blind Co., Burlington, Vt.

Venetian Blinds. Booklet, 7 in. x 10 in., 24 pages. Illustrated. Describes the "Burlington" Venetian blinds, method of operation, advantages of installation to obtain perfect control of light in the room.

VENTILATION

Globe Ventilator Company, 205 River Street, Troy, N. Y.

Globe Ventilators Catalog. 6 x 9 in. 32 pp. Illustrated profusely. Catalog gives complete data on "Globe" ventilators as to sizes, dimensions, gauges of material and table of capacities. It illustrates many different types of buildings on which "Globe" ventilators are in successful service, showing their adaptability to meet varying requirements.

Van Zile Ventilating Corporation, 280 Madison Avenue, New York, N. Y.

The Ventadoor Booklet. 6½ x 3½ in. 16 pp. Illustrated. Describes and illustrates the use of the Ventadoor for Hotels, Clubs, Offices, etc.

WALLPAPER

Wallpaper Mfrs. Assn., 461 Eighth Avenue, New York.

Wallpaper Magazine. Illustrated. 8 x 11 in. 32 pp. Published monthly to acquaint architects and interior decorators with many interesting and decorative uses for wallpaper.

WATERPROOFING

Carey Company, The Philip, Lockland, Cincinnati, Ohio.

Waterproofing Specification Book. 8½ x 11 in. 52 pp.

The General Fireproofing Company, Youngstown, Ohio.

Waterproofing Handbook. Booklet. 8½ x 11 in. 72 pp. Illustrated. Thoroughly covers subject of waterproofing concrete, wood and steel preservatives, dustproofing and hardening concrete floors, and accelerating the setting of concrete. Free distribution.

Master Builders Company, Cleveland, Ohio.

Mastertex: Waterproof Cement Paint in Colors. Folder 10½ x 12½ inches.

Ruberoid Co., The. 95 Madison Ave., New York.

Impervite. Circular. 8½ x 11 in. 4 pp. Illustrated. An integral water-proofing compound for concrete, stucco, cement, mortar, etc.

Sandusky Cement Co., Dept. F., Cleveland, Ohio.

Medusa Waterproofing. Booklet. 6¾ x 9 in. 38 pp. Illustrated.

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York, N. Y.

Pamphlet. 3¾ x 8¾ in. 8 pp. Explanation of waterproofing principles. Specifications for waterproofing walls, floors, swimming pools and treatment of concrete, stucco and mortar.

WATERPROOFING

Toch Brothers, 110 East 42nd Street, New York City.

Specifications for Dampproofing, Waterproofing, Enameling and Technical Painting. Complete and authoritative directions for use of an important line of materials.

WATER PURIFIERS

Wallace & Tiernan Company, Newark, N. J.

Protecting N. Y. Water Supply. Booklet. 10 x 7 in. 4 pp. Illustrated. Describes the chlorinating equipment used for sterilizing N. Y. City water supply; also equipment suitable for sterilizing water supplies of municipalities, industrial plants, private residences, etc.

The W. & T. Chlorometer, Technical Publication, No. 55. Booklet, 8½ x 11 in. 8 pp. Illustrated. A useful brochure dealing with the value of pure water and the importance of the chlorination process in sterilization.

WATER SOFTENERS

Permutit Company, The, 440 Fourth Ave., New York, N. Y.

Permutit-Water softened to No (Zero) Hardness. Booklet. 8½ x 11 in. 32 pp. Describing the original Zeolite process of softening water to zero hardness. An essential for homes, hotels, apartment houses, swimming pools, laundries, textile mills, paper mills, ice plants, etc., in hard water districts.

WEATHER STRIPS

Chamberlin Metal Weather Strip Company, 1644 Lafayette Boulevard, Detroit, Mich.

Chamberlin Metal Weather Strip Details, 1925 edition. Catalog 8½ x 11 in. 48 pp. Complete specifications and full-sized details. With or without 9 x 11¾ in. folder conforming to A. I. A. filing system. May also be used in loose leaf form.

Excluding Cold and Dust with Chamberlin for 32 years. Booklet 5⅛ x 7⅜ in. 16 pp. Illustrated. Completely and interestingly illustrates application of Chamberlin equipment.

The Higgin Manufacturing Co., Newport, Ky.

Higgin All-Metal Weather Strips. Booklet. 6 x 9 in. 21 pp. Illustrated in colors. Describes various types of Higgin Weather Strips for sealing windows and doors against cold and dust.

WINDOWS

David Lupton's Sons Company, Philadelphia.

Lupton Pivoted Sash, Catalog 12-A. Booklet 48 pp., 8⅝ x 11 ins. Illustrates and describes windows suitable for manufacturing buildings.

WINDOWS, CASEMENT

Richards-Wilcox Mfg. Co., Aurora. Ill.

Casement Window Hardware. Booklet. 24 pp. 8½ x 11 in. Illustrated. Shows typical installations, detail drawings, construction details, blue-prints if desired. Describes AIR-way Multifold Window Hardware.

Crittall Casement Window Co., 10951 Hearn Ave., Detroit, Mich.

Catalog No. 22. 9 x 12 in. 76 pp. Illustrated. Photographs of actual work accompanied by scale details for casements and composite steel windows for banks, office buildings, hospitals and residences.

Detroit Steel Products Co., Detroit, Mich.

Fenestra Casement Windows. Catalog. 8½ x 11 in. 20 pp. Illustrated. Gives construction and installation details of steel casements, standard and stock types and sizes.

Hope & Sons, Henry, 103 Park Ave., New York, N. Y.

Catalog. 12¼ x 18½ in. 30 pp. Illustrated. Full size details of outward and inward opening casements.

David Lupton's Sons Company, Philadelphia.

Lupton Casements of Copper-Steel. Catalog C-122. Booklet 16 pp., 8⅝ x 11 ins. Illustrated brochure on casements, particularly for residences.

WINDOWS, STEEL AND BRONZE

Detroit Steel Products Company, Detroit, Mich.

Fenestra Basement Windows. Booklet. 3⅝ x 6¼ in. 16 pp. Illustrated. Describes steel basement windows, their advantages, details and specifications for installation.

Fenestra Reversible Ventilator Windows. Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes the details of this new model window, as well as the variety it offers for attractive architectural design.

Fenestra Industrial Window Walls. Catalog. 8½ x 11 in. 111 pp. Illustrated. Details and specifications, with photographic illustrations, are thoroughly covered in the Fenestra General Catalog.

The Kawneer Company, Niles, Mich.

Kawneer Simplex Windows. Catalog. 8½ x 10½ in. 16 pp. Illustrated. Complete information, with measured details, of Kawneer Simplex Weightless Reversible Window Fixtures, made of solid bronze. Shows installations in residences and buildings of all sorts.

Detail Sheets and Installation Instructions. Valuable for architects and builders.

Metal Windows. Catalog. 8½ x 11 in. 18 pp. Illustrated. Features double-lining and casement windows of metal.

David Lupton's Sons Company, Philadelphia.

A Rain-shed and Ventilator of Glass and Steel. Pamphlet, 4 pp. 8⅝ x 11 ins. Deals with Pond Continuous Sash, Sawtooth Roofs, etc.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.

Truscon Steel Windows. Catalog. 8½ x 11 in. 80 pp. Illustrated. Contains complete data on all types of Truscon Steel Windows.

WOOD—See also Millwork

American Walnut Mfrs. Association, 618 So. Michigan Blvd., Chicago, Ill.

American Walnut. Booklet. 7 x 9 in. 45 pp. Illustrated. A very useful and interesting little book on the use of Walnut in Fine Furniture with illustrations of pieces by the most notable furniture makers from the time of the Renaissance down to the present.

Real American Walnut Furniture. Folder. 8½ x 11 in. 4 pp. Illustrated. Tells how to identify the genuine and avoid the substitute in buying "Walnut" furniture.

California White and Sugar Pine Mfrs. Assn., San Francisco, Cal.

Information Sheet No. 1, California White Pine; Information Sheet No. 2, California Sugar Pine. Illustrated booklets 8 x 10½ in. First of a series of Information Sheets on these woods and their uses for construction and finish.

Curtis Companies Service Bureau, Clinton, Iowa.

Better Built Homes. Vols. XV-XVIII, incl. Booklet. 9 x 12 in. 40 pp. Illustrated. Designs for houses of five to eight rooms, respectively, in several authentic types, by Trowbridge & Ackerman, architects, for the Curtis Companies.

Long-Bell Lumber Co., Kansas City, Mo.

The Perfect Floor. Booklet 5¼ x 7¾ in., 16 pp. Illustrated. Valuable for the data given on the use of wood for floors.

Saving Home Construction Costs. Booklet 4⅛ x 7½ in. 24 pp. Discusses economy and value in domestic building.

Experiences in Home Building. Booklet 6 x 9 in. 16 pp. Records the testimony of a number of builders and contractors as to the value of certain materials.

The Post Everlasting. Booklet 8 x 11 in. 32 pp. Illustrated. Describes the production of posts and their use in various ways.

Booklet. 6 x 8 in. Architectural Woodwork of Mahogany. 32 pp., fully illustrated with photographs of mahogany panelings and containing much information of interest to architects.

Matthews Bros. Mfg. Company, Milwaukee, Wis.

Architectural Woodwork. Catalog. 9 x 12 in. 34 pp. Illustrated. This is the only catalog issued, and contains views showing both exteriors and interiors of banks, private residences, and office buildings in which this Company's woodwork has been installed.

Pacific Lumber Company, 332 So. Michigan Ave., Chicago, Ill.

California Redwood. Booklet. 9 x 12 in. 36 pp. Illustrated. Describes in a general way the production, manufacture and various uses of California Redwood.

Redwood Construction Digest. Booklet. 8½ x 11 in. 16 pp. Illustrated. Redwood and Its Uses in the Construction Field. Contains specifications and other information of interest to architects.

WOOD FINISHES—See Paints, Varnishes, Stains

California PINE

California White Pine
(trade name)

California Sugar Pine

Sidings that look well and "stay put"

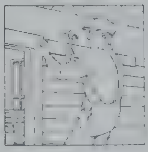
THE HOUSE with California Pine siding stands as a permanent display of the architect's good judgment.

Siding of California Pine, not only looks well to start with, but *holds* its shape, lays flat without warping or end-shrinking, twisting or splitting. That is because of the remarkable cellular construction of California Pine, and its susceptibility to perfect seasoning.

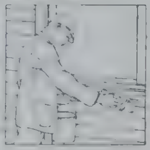
Builders and carpenters, likewise welcome the specification of California Pine siding. The builder, because this siding is obtainable in all the various forms, of standard widths and lengths—the carpenter, because California Pine siding is so easy to cut, fit and nail securely to the sheathing. All of which makes for good workmanship without waste of time.

Then, as to painting—this light-colored, soft pine is easy to paint. The brush moves along readily while the paint flows evenly and spreads smoothly. California Pine holds paint—the coat *stays* smooth, because of freedom from pitch and grain-raising tendencies.

Carpenters like California Pine siding because it's easy to cut and fit, and makes for good workmanship.



Cork-like texture holds nails tightly and prevents splitting even with nails driven close to edge or end.



Paint flows evenly and spreads smoothly on California Pine. It *holds* paint well and the coat stays smooth.

If you have not received a set of our Information Sheets on California Pine, let us send them to you. You are also invited to correspond with our Wood Technologist, formerly with the U.S. Government Forest Products Laboratory, at Madison, Wisconsin, and now connected with this association.

California White and Sugar Pine Manufacturers Association
654 Call Building · San Francisco

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SINCE the public space in an apartment building brings in no direct revenue, it is a burden on the rentable portion; and it is a double burden if it has to be redecorated every few years.

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In Jersey Insect Screen Cloth architects find, combined with unsurpassed durability of unalloyed copper (99.8% pure) a stiffness and tensile strength comparable to that of steel.

This is due to a special Roebling process for making the copper wire used exclusively in making Jersey. And it is *this* feature which puts Jersey Copper Screen Cloth in a class by itself.

You may specify Jersey with confidence that it is unrivaled by any other insect screen cloth.

May we send you samples? A word from you will bring them and you may rest assured that no annoying sales efforts will follow.

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THOROUGHFARES of two levels offer the greatest relief from traffic congestion in the opinion of many architects and engineers who are looking "toward tomorrow." The increasing demand for concrete construction will find Lehigh shaping its policy with eyes to future needs, just as today it is meeting all requirements with nineteen mills from coast to coast.

Any architect or engineer can secure the series of renderings by Hugh Ferriss—"Toward Tomorrow," of which the above is one. Address Lehigh Portland Cement Company, Allentown, Pennsylvania, or Chicago, Illinois.

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SIMCORE - National Electrical Code Standard. Every length is subjected to searching electrical tests to insure a first quality product. Ask for specifications.

CAOUTCHOUC - "B. C." A rubber covered braided wire insulated with a 30% Para compound. Send for specifications.

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FIBREX TREE WIRE - For installation among trees or where chafing may occur. It is non-inductive. Send for circular.

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TIREX PORTABLE CORD - For electrical tools and appliances. Rubber-armored. Flexible. It cannot kink,—and has the wearing qualities of an automobile tire.

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Technically trained experts who know how to impart the qualities which insure satisfactory service supervise the manufacture of all Simplex Wires and Cables.

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MANUFACTURERS
201 DEVONSHIRE ST., BOSTON
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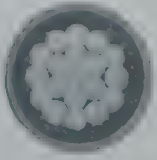


He'll thank you for the hint

YOUR piping contractor will thank you for this hint—Grinnell Pipe Hangers. Their use will cut his labor costs just as they have always cut ours. And we've used a dozen million of them. For yourself, you'll get a piping equipment that can always be kept in perfect alignment through the simple adjustable features of these hangers.

These hangers grew out of the practical suggestions of experienced Grinnell construction foremen. That's why they solve actual field problems of hanging pipe and radiators anywhere. Since they can be bought on the open market, why be content with anything less than the best?

SEND for our free 120-page catalogue. If your jobber doesn't stock Grinnell Hangers, ask us for the name of the nearest distributor. Address Grinnell Co., Inc., 285 W. Exchange St., Providence, R. I.

Use a dozen and see why we've used a dozen million

GRINNELL
ADJUSTABLE PIPE HANGERS

Banishes Garbage—Attracts Tenants —Cuts Upkeep Costs

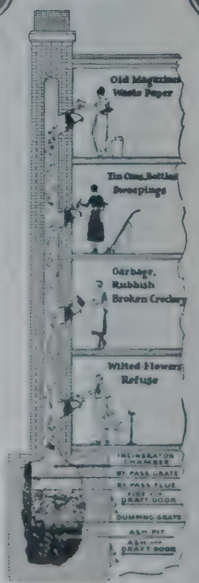
ARCHITECTS, builders and realtors everywhere have found the time-tried Kernerator a wise investment. For, with one moderate cost (there's no operating expense whatever) it removes forever the problem of garbage and waste disposal, enhances the attractiveness of the premises, promotes contentment of both tenants and building help, and eliminates the fire hazard of the old refuse pile.

Handles all garbage in manner shown in picture—uses no fuel of any kind—requires merely an occasional lighting. Metallic objects (tin cans and the like) are flame-sterilized for removal with the ashes. Thousands in use for years. Guaranteed.

For more detailed information, consult Sweet's (1925) Pages 2800-01, or write

KERNER INCINERATOR CO.
715 East Water St. Milwaukee, Wis.

Drop all waste in handy hopper door—then FORGET it!



Here is a typical Kernerator installation. It costs no more than a good radio set and you get rid of the garbage nuisance forever.

KERNERATOR
Built-in-the-Chimney
Reg. U. S. Patent Office

Keep Right On Building This Winter

Bears and ground hogs still hibernate. But engineers, architects, contractors and building owners don't let winter drive them to cover.

They know that "time is money"— that winter is just as good as any other time to build; so they keep on building in cold weather.

The building industry, as well as the public, recognizes that this practice is not only practical but usually profitable for all concerned.

Winter construction means that builders can continue their work without interruption through twelve months. The builder's crew, which has been trained to maximum efficiency, can be kept intact and steadily employed with profit to everyone.

Winter construction by providing quicker occupancy, brings to the owner an earlier return on his investment.

During the winter there are few delays in getting material. Sand and stone are usually nearby; cement is obtainable on short notice practically anywhere. And these materials come to you ready for use—you make your building right on the job.

In winter, as in summer, concrete is the last word in speed of construction—the champion time saver.

If you have not yet experienced the advantages of winter building, plan now to do so.

And remember, where "time is money" use concrete.

* * *

The few fundamental principles of cold weather construction are simple and easy to apply. If you are not familiar with them, ask our nearest District Office for literature on winter building. There is no obligation.

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A National Organization to Improve and Extend the Uses of Concrete

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Oklahoma City
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Portland, Oreg.
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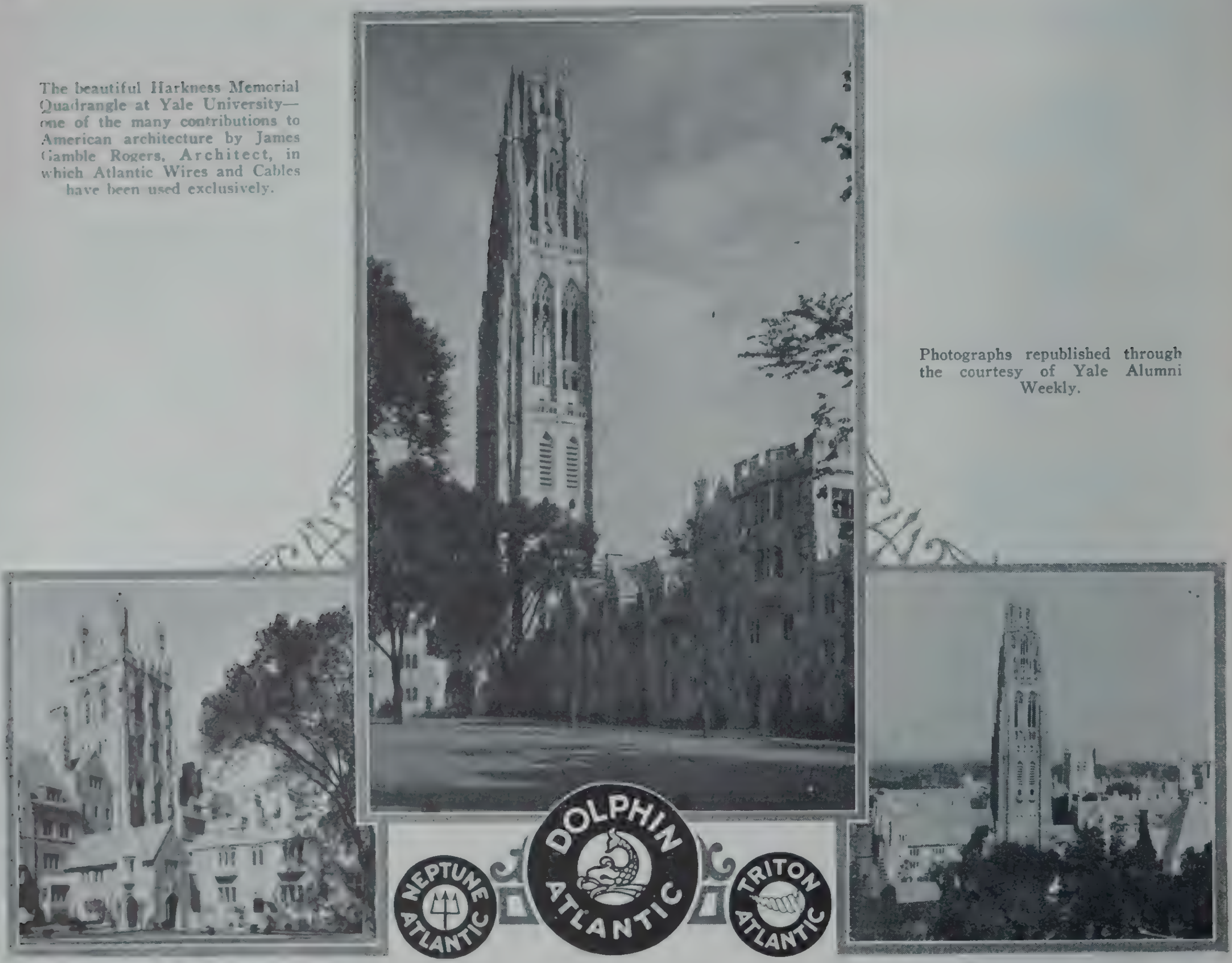
The beautiful Harkness Memorial Quadrangle at Yale University—one of the many contributions to American architecture by James Gamble Rogers, Architect, in which Atlantic Wires and Cables have been used exclusively.



Photographs republished through the courtesy of Yale Alumni Weekly.

Worthiness in Wiring

The increasing interest of the American architect in those high types of wiring materials which are worthy of a place in modern building achievement is reflected in the care with which the components of the electrical system for the Harkness Memorial Quadrangle were selected.

Desire that the electrical system should function safely and without interruption for long years to come led unerringly to the choice of the famous "Triton" grade Atlantic compound as representative of one of the few really noteworthy insulated wires of American manufacture.

Backed by more than a quarter of a century of research and improvement—installed in thousands of the country's best known structures—and built to one of the most exacting wire and cable specifications ever drawn — Atlantic "Triton" with "Neptune" and "Dolphin" grades cost no more than corresponding brands of less dependability.

Many of America's leading architects and specifying engineers stand ready to testify to the worthiness of these three famous brands of wire and to the lasting satisfaction that their use insures to you and to your clients.

An opportunity to submit detailed specifications, samples for your most exacting inspection or to be of assistance in connection with your standard wire and cable specifications will be welcomed.

Atlantic Insulated Wire and Cable Co., Rome, N. Y.

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INSULATED WIRE & CABLE
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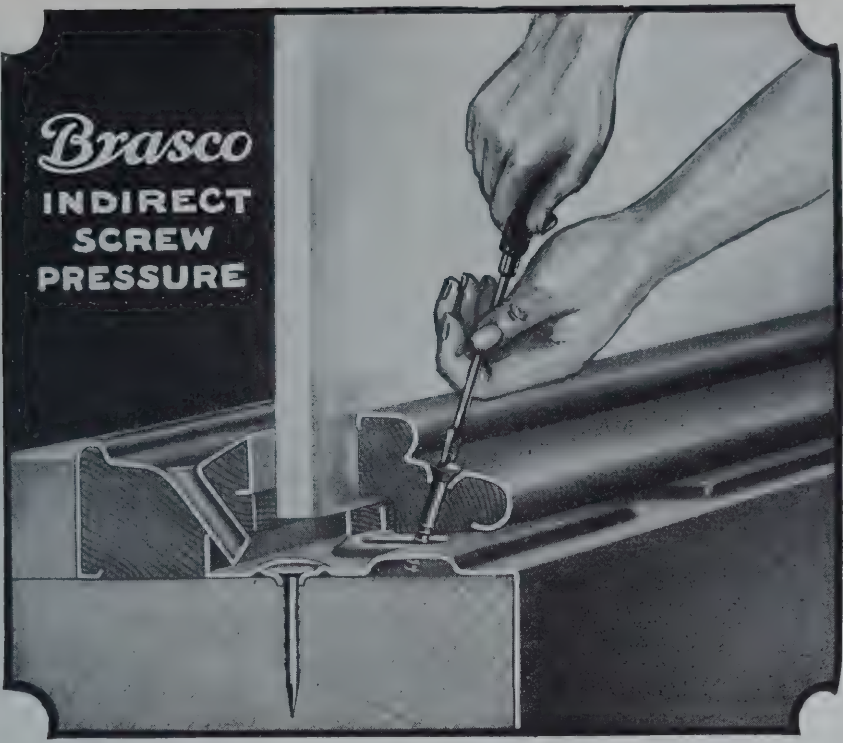
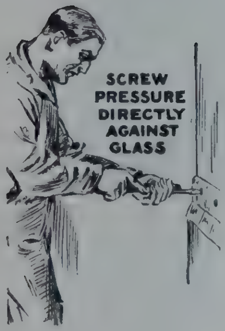
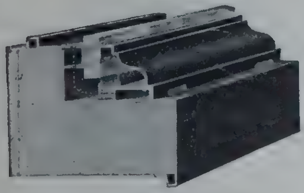


With or Against?

A Vital Factor in Glass Safety





Brasco "500" All Metal Construction. The indirect screw pressure principle is used in this as in all Brasco constructions.

Whether or not the plate glass in a store front will remain intact through years of vibration, stress and strain from traffic and the elements, is solely a matter of the *method of holding it.*

No plate can long stand the direct pressure of screws against it nor contact with screws at its edges. To overcome these hazards and still hold the plate in a firm, supple and uniform grip, Brasco perfected its distinctive *indirect screw pressure* principle, which time has proven to be the safest system ever devised.

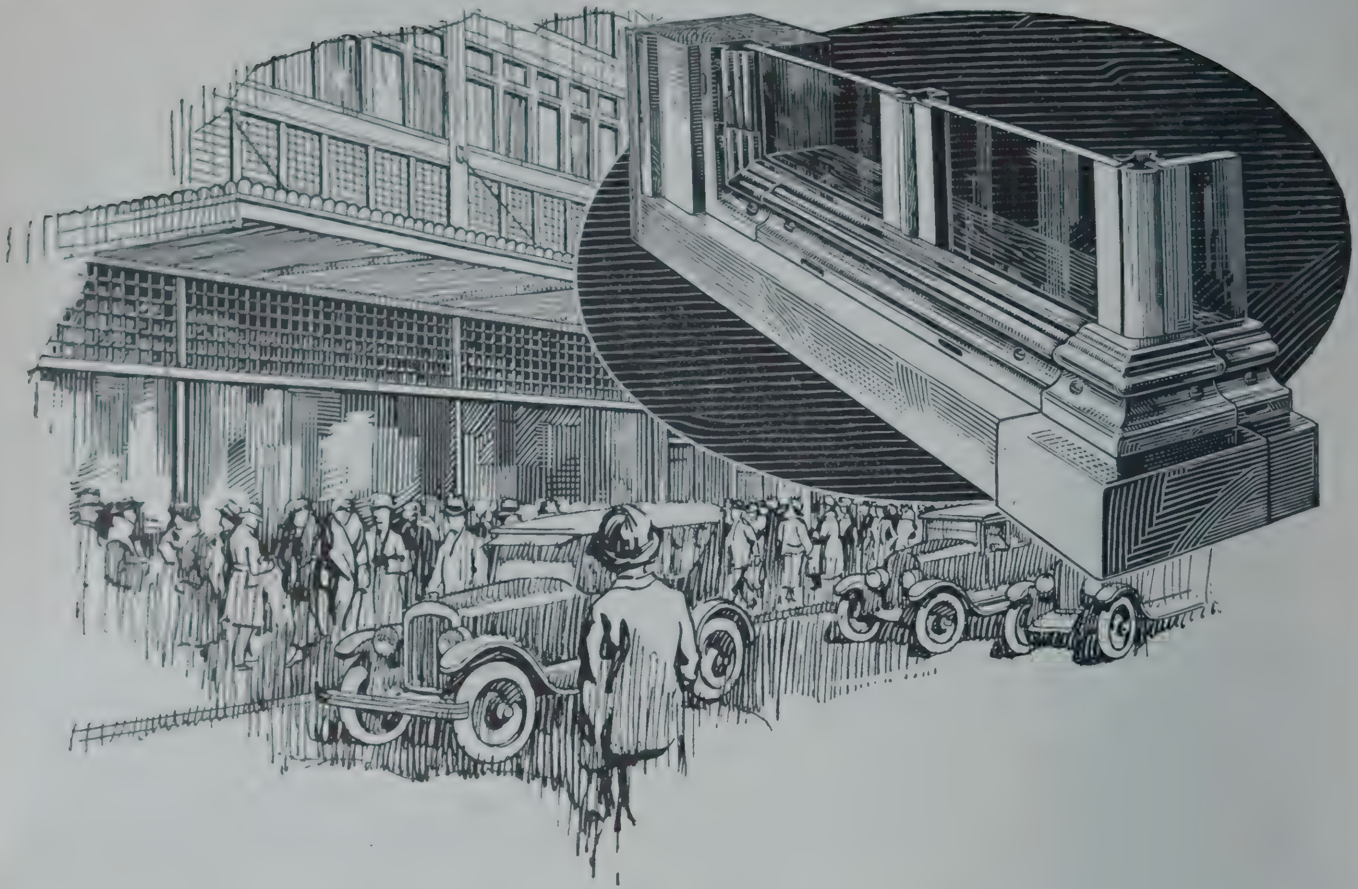
The illustration above, clearly shows the screw pressure acting *in the direction* of the plate and never against it. It shows the impossibility of plate and screws ever meeting—it is visible proof of one of the big reasons for Brasco supremacy in records of glass safety.

Other Brasco features are equally outstanding in merit—heavy gauge copper—steel reinforcement in moulding—effective ventilation and drainage—permanent beauty—ease and economy of installation—reasonable cost.

Catalog and details gladly sent on request.

BRASCO MANUFACTURING CO.
5031 Wabash Ave., Chicago

Brasco
COPPER STORE FRONTS



Desco Fronts Become A Part of the Structure Itself

DESCO Store Fronts fit into the picture. They don't look like an after-thought. Their beauty, dignity and strength represent long years of manufacturing experience and constant co-operation with architects.

The wide choice of treatment enables you to blend the right front to the right structure. At moderate cost, no greater than that of the ordinary store front, you create lasting evidence of your good judgment by specifying Desco.

Your request will bring complete working details and a price-list, without obligation. Sweet's Catalog also contains further information. There is a distributor near you. A complete stock of "Desco" construction materials is carried in our New York City Warehouse, 562 West 52nd Street.

DETROIT SHOW CASE CO., 1650 Fort Street West DETROIT, MICH.

[239]

Desco
METAL
STORE FRONTS

THE cozy corner in the living room illustrated above is a splendid representation of solid comfort. The whole setting from the quiet mellow tones of the gray walls to the colorful drapes and the deep-piled rugs, lend a feeling of restfulness and contentment.

Here too the casements play an important part for without them such cheerfulness could never be obtained. They admit warm playful sunbeams and refreshing summer breezes and also defy, through interlocking construction, the intruding blasts of winter.

The Kawneer Solid Nickel Silver Windows shown above are adaptable to any building where durability and positive weathering are desired.

THE friction adjuster featured in the pen and ink sketch above is applied to all Kawneer casements. It will hold the sash at any desired angle and without the usual adjustment of thumb screws, etc. They are made of Kawneer Nickel Silver.

Information pertaining to Windows or Store Fronts will be gladly furnished.

THE
Kawneer
COMPANY
NILES, MICHIGAN

SEE OUR
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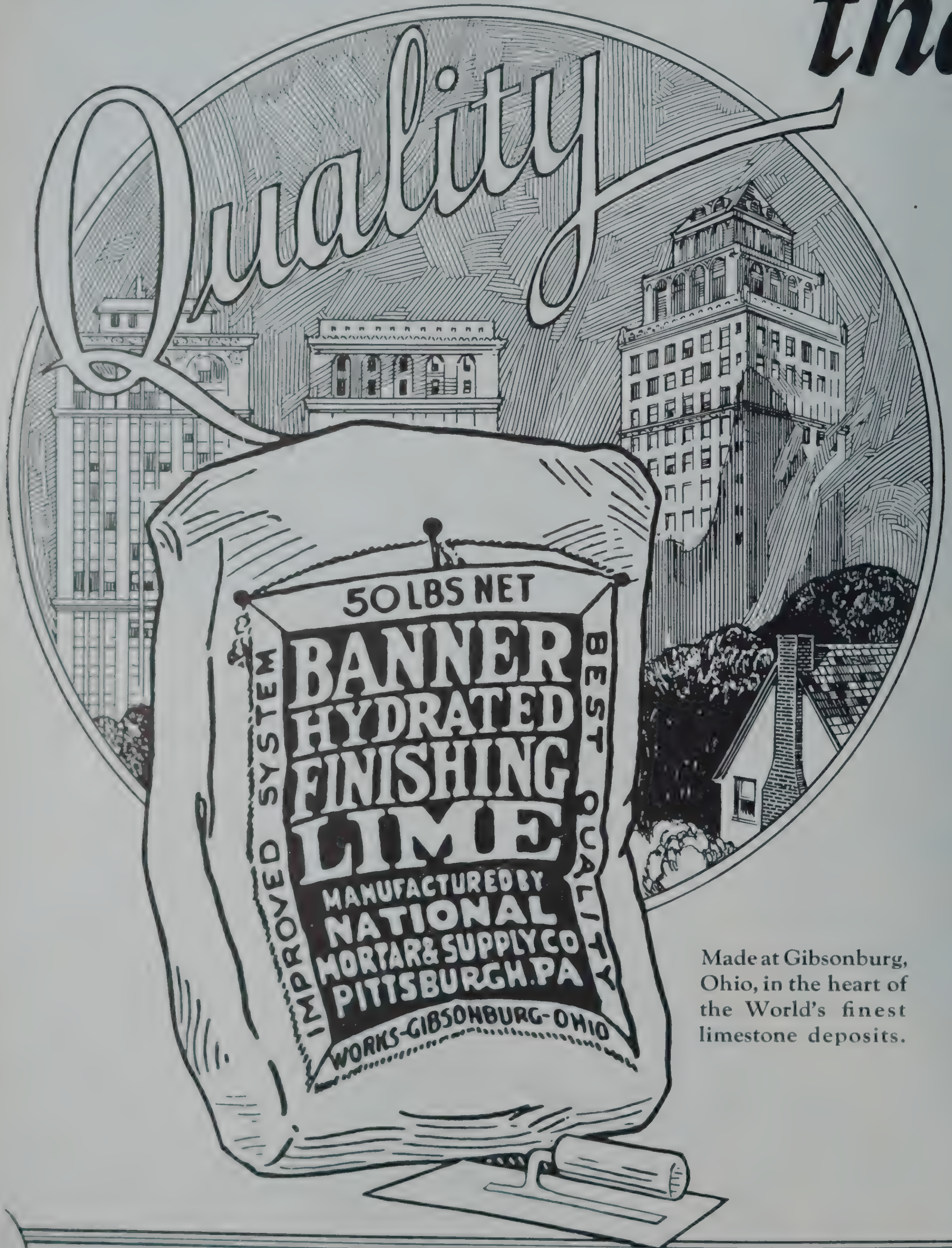
Banner-One Name that



Made at Gibsonburg, Ohio, in the heart of the World's finest limestone deposits.

Manufactured by **National Mortar &**

With a Meaning Never Changes

Banner is labeled "quality" because quality is the highest standard

For more than twenty years, Banner and quality have been synonymous.

And the relation shall continue for quality is the standard that was set in the beginning.

From the highest executive to the fellows who load the cars, this big organization is pledged to produce the finest finishing lime obtainable.

Banner users expect to find superiority in Banner Finish because it's made from the country's finest limestone in the world's largest single plant devoted exclusively to the production of only one brand.

You can depend upon Banner to provide less expensive and more durable walls than any other material because, first, it is strictly a quality product and secondly, a twenty year record in all types of buildings, large and small, proves its every claim.

Specify Banner for the walls of any job you may be planning—it's the easiest, the safest way to be sure of the best.

Banner

"Easy to Spread-
Hard to Beat"

Supply Co. Pittsburgh, Pa., U.S.A.

EXQUISITE

It is seldom that the spirit of the Italian Rennaisance is so accurately portrayed as in this uniquely beautiful piece. Purity of design is reflected with warmth in every detail of this direct-indirect luminaire

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by
The Luminaire Studios, Inc.

A Division of
CURTIS LIGHTING, Inc.
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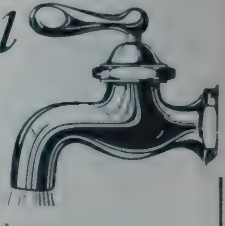
Engineering Counsel for Architects



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KEWANEE men are not salesmen nor ex-plumbers, but trained experts in private water supply, electric light and sewage disposal. Back of them is the KEWANEE quarter century of technical and manufacturing experience and the KEWANEE line of over 200 private utility systems.

We appreciate the architect's needs and problems. We are glad to help draft specifications for proper private utilities to fit the exact needs of each job—from country cottage to million dollar club or estate.

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Our complete architects' specification book contains a mass of engineering data and specifications on water supply, electric light and sewage disposal. You need it. Sent free. Write for it.

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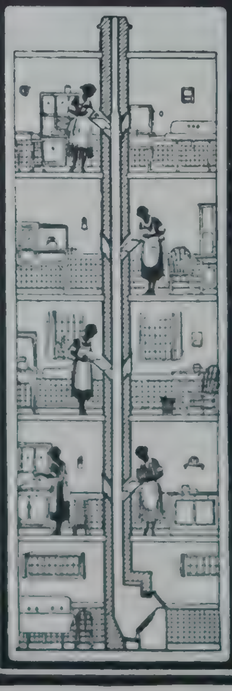

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SPECIFIED BY THE
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Show Window *and* Cove Lighting

One of the ten State Street windows of Marshall Field & Co., Chicago, "Pittsburgh" lighted. Photograph not retouched.

Architects who have clients requiring Show Window or interior Cove Lighting specifications will find "Pittsburgh" specialized service practical and helpful.

We have been active in this field for many years, and many of the finest show window and interior lighting installations in the country have "Pittsburgh" equipment throughout.

"Pittsburgh" Reflectors ***stay bright.*** Although guaranteed for five years, not one of them made since we began using the coppering process of backing—more than nine years ago—has ever been reported to us as having the silvered reflecting surface tarnish or discolor, or the backing crack, check or peel.

We will gladly send you copies of "Pittsburgh" booklets covering the subjects of show window and cove lighting.

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(Formerly Pittsburgh Reflector & Illuminating Co.)

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Silvered REFLECTORS
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EXTERIOR LIGHTING FIXTURES
CATALOGUE "J"
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The New
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is replete with exactly the kind of information that architects want regarding exterior lighting fixtures.

It is a most complete treatise on lamps, brackets, standards and special exterior lighting fixtures for public buildings, street lighting, large and small estates and private homes.

Copies are reserved for recognized architects. Mailed upon request.

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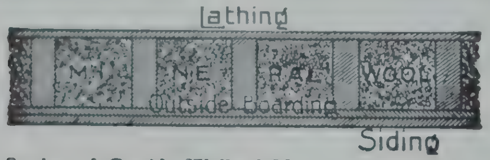

Section of Outside Wall of House, Showing Wool Between Studding

Mineral Wool for Building

Mineral Wool has superseded all other materials used for similar building purposes because it does "a great work at little expense." A house lined with Mineral Wool has an indestructible, fire-proof and vermin-proof guard; it protects the entire household. In the winter time it keeps the cold air out, facilitating proper heating and economy in fuel. In the summer it keeps the heat out.

This material, being of fibrous, inelastic composition, acts as a deadener and muffles all sound. It is considered the best insulator material on the market, making it a perfect refrigerating machine.

Mineral Wool makes life-long friends of all its users. If you are skeptical as to its power, let us demonstrate. We can prove all claims. Write us today.

U. S. MINERAL WOOL CO.

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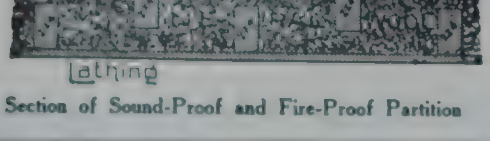
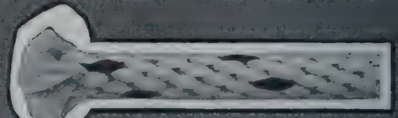


Section of Sound-Proof and Fire-Proof Partition

Trade-Mark

SAMSON SPOT SASH CORD



Trade-Mark Reg. U. S. Pat. Off.

MADE of extra quality stock, carefully inspected, and guaranteed free from imperfections of braid or finish. No loaded centre to increase weight and decrease wear.

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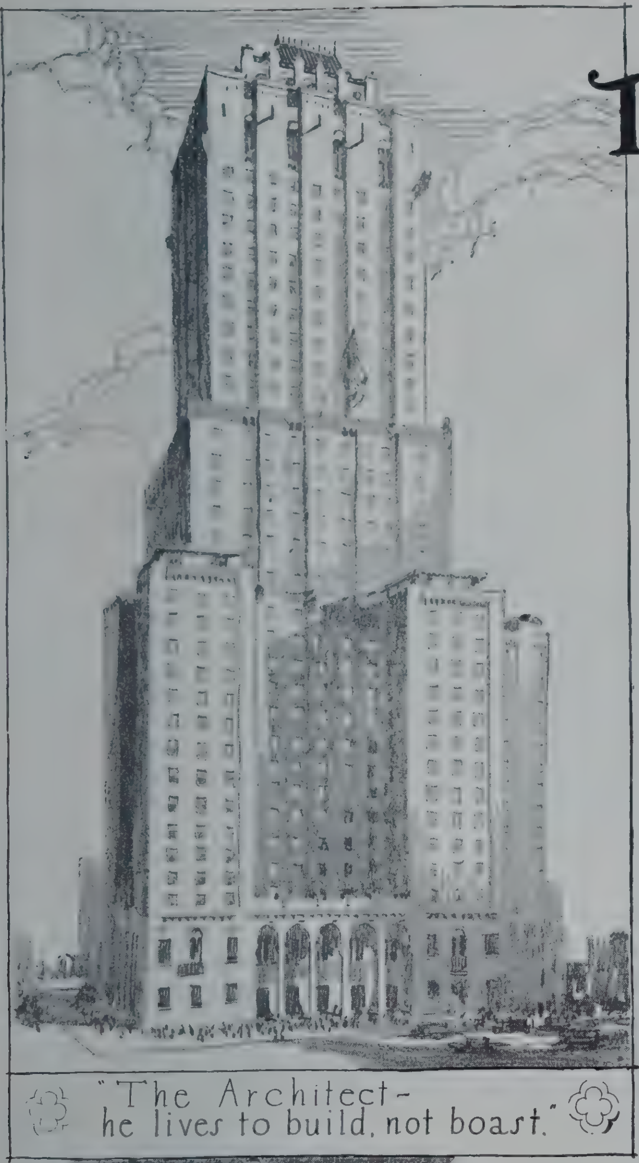

"The Architect-
he lives to build, not boast."

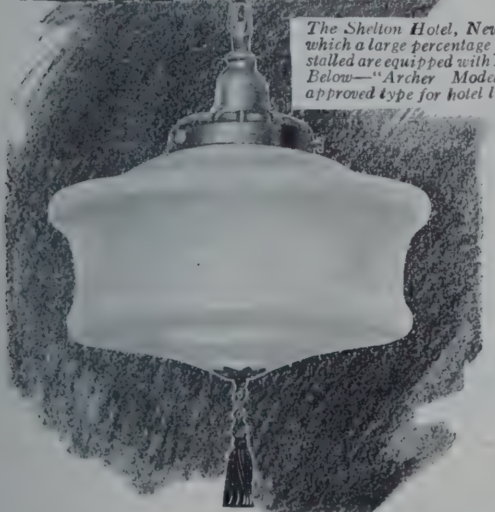
The Shadow Chasers

THE success of any hotel you plan depends as much upon the comfort and convenience you provide for its future guests as upon the beauty of its architecture and interior decorations. One of the greatest comforts any hotel can provide is that of good light. As a matter of fact, adequate light is more than a comfort; it is a necessity.

Adequate light must not be confused with an intense, glaring light that casts sharp Shadow. Glare, the cause of eyestrain and headache, is easily avoided by correct diffusion, and by specifying proper glassware correct diffusion is obtained.

MONAX GLOBES spray a glareless, cheerful light *uniformly* in all directions, yet absorb scarcely any of it. They eliminate depressing Shadow, once and for all. Easy to clean, their lighting efficiency can always be easily maintained.

The Shelton Hotel, New York City, in which a large percentage of the fixtures installed are equipped with MONAX GLOBES. *Below—"Archer Model"* MONAX, *an approved type for hotel lighting.*



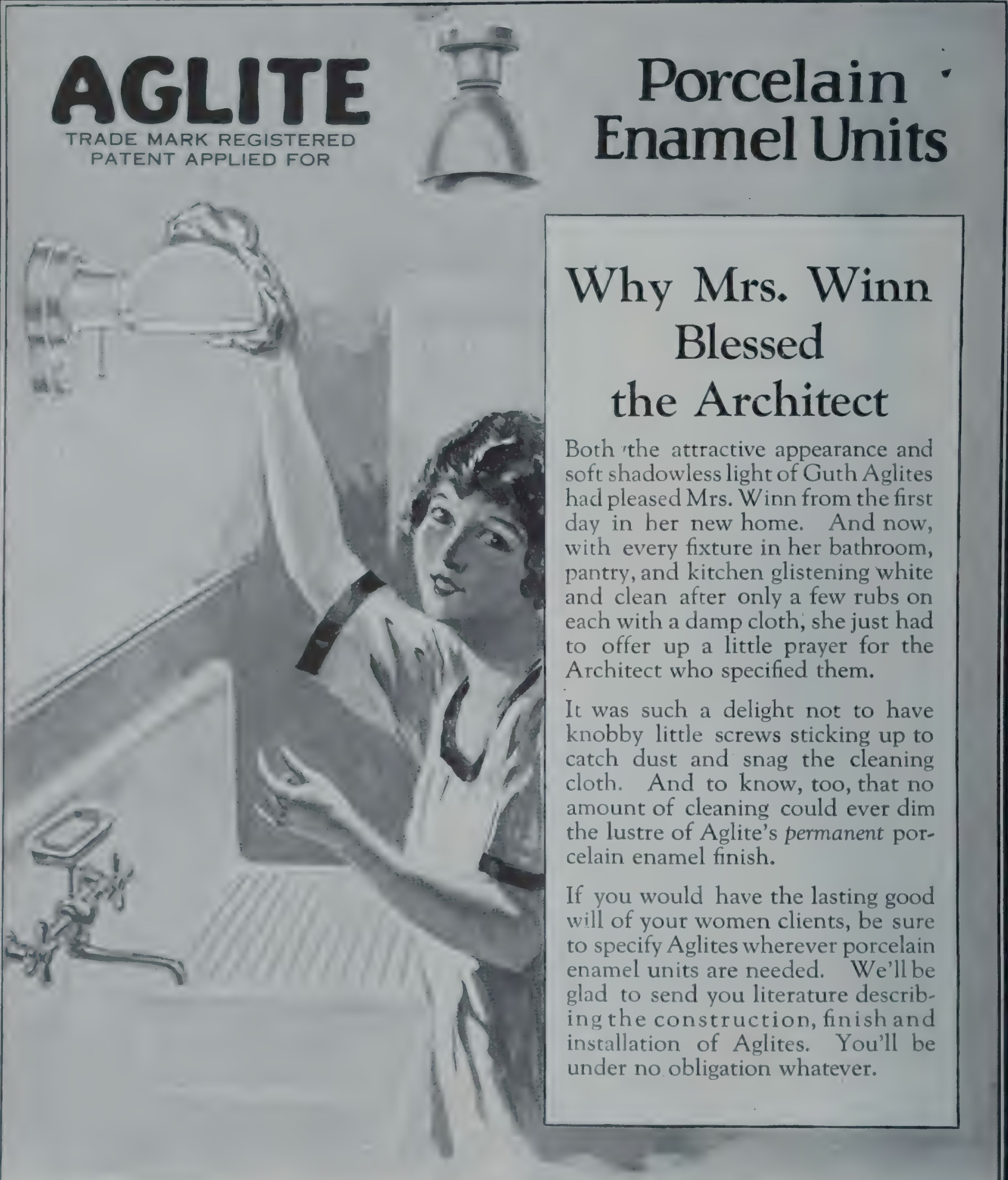
Write our Illuminating Engineering Department and ask them to analyze your hotel or any other lighting problems you may have on the boards. There is no obligation

Macbeth-Evans Glass Company
(Eastern Division)
DEPARTMENT J
CHARLEROI, PENNSYLVANIA

Reg U.S. Pat Off

MONAX GLOBES

The Shadow Chasers
for Hotel Lighting



AGLITE
TRADE MARK REGISTERED
PATENT APPLIED FOR

Porcelain
Enamel Units

Why Mrs. Winn
Blessed
the Architect

Both the attractive appearance and soft shadowless light of Guth Aglites had pleased Mrs. Winn from the first day in her new home. And now, with every fixture in her bathroom, pantry, and kitchen glistening white and clean after only a few rubs on each with a damp cloth, she just had to offer up a little prayer for the Architect who specified them.

It was such a delight not to have knobby little screws sticking up to catch dust and snag the cleaning cloth. And to know, too, that no amount of cleaning could ever dim the lustre of Aglite's *permanent* porcelain enamel finish.

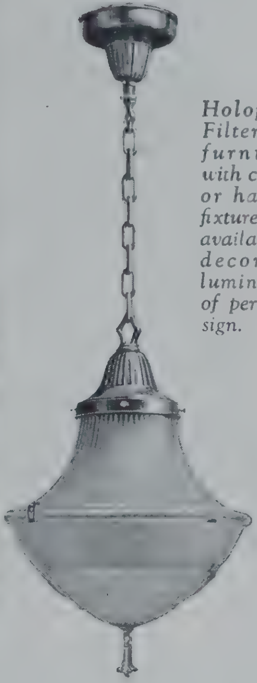
If you would have the lasting good will of your women clients, be sure to specify Aglites wherever porcelain enamel units are needed. We'll be glad to send you literature describing the construction, finish and installation of Aglites. You'll be under no obligation whatever.

The EDWIN F. GUTH COMPANY
DESIGNERS-ENGINEERS-MANUFACTURERS
Lighting Equipment
2629 Washington Ave., St. Louis, Mo.
BRANCH OFFICES (Sales and Service) In Principal Cities

GUTH QUALITY

JR232

The new building of the Insurance Company of North America, located at Philadelphia, Pa.; Stewardson & Page, Architects; Stone & Webster, Engineers; Hatzel & Buehler, Electrical Contractors.



Holophane Filterlite—furnished with ceiling or hanging fixtures; also available in decorative luminnaires of period design.

Big Insurance Companies Endorse Filterlite

INSURANCE COMPANIES make a science of protecting the health and promoting the efficiency of their employees. They also own the largest office buildings. It is doubly significant that so many large Insurance Companies use Holophane Filterlite.

For instance, the new building of the Insurance Company of North America is lighted with over 3,000 Holophane units. Of these, 2,400 are in offices—all of them Holophane Filterlites. In the corridors the equipment is Holophane Corridor Units; in the open halls, Holophane Reflector-Refractors; and in the service quarters other Holophane units. Each type of Holophane was selected after exhaustive tests including more than a dozen of the leading lighting units.

Other Insurance Companies using Holophane Filterlites are:

New York Life Insurance Company
Employers Liability Insurance Company
Aetna Life Insurance Company
American Insurance Company
Prudential Life Insurance Company
State Mutual Life Assurance Company

The Holophane units used by these companies are made of prismatic glass, each prism shaped to direct the light exactly as needed. They give better lighting from the same current than is obtainable in any other way.

Our Engineering Department will gladly co-operate with any architect in laying out lighting installations for any job on which he is working or figuring.

HOLOPHANE COMPANY

New York and Toronto

In Schools

Rubberstone Tile Flooring used to advantage in
THE HIGH SCHOOL FOR THE SCHOOL DISTRICT OF MONONGAHELA CITY
MONONGAHELA CITY, PENNA.
W. GEORGE ECKLES CO., ARCHITECTS—NEW CASTLE, PENNA.

RUBBERSTONE tile a practical and economical flooring, ideally suited for use in Universities, Colleges, Public Schools, etc.

A real floor—it stands real service, is quiet and comfortable under-foot, non-absorptive and easy to keep clean.

When repairs are necessary, new tiles can easily be laid, without changing the appearance of the floor.

These intrinsic qualities combine to make Rubberstone tile flooring ideal for classrooms, corridors, auditoriums, gymnasiums, lavatories, etc.

Rubberstone tile is furnished in tan, olive green, terra cotta red, dark brown and black.

Send for Samples

We shall be pleased to send you complimentary samples of Rubberstone tile and specification data for your files if you will use the handy coupon or have your secretary drop us a line.

SEE OUR CATALOGUE IN SWEET'S

RUBBERSTONE CORPORATION
Executive Offices: 1400 Broadway, New York
Chicago Philadelphia
Distributors in Principal Cities

RUBBERSTONE TILE FLOORS
TRADE MARK REG. U.S. PAT. OFF.
for Permanence

RUBBERSTONE CORPORATION
1400 Broadway, New York
Gentlemen:
Without obligation, please send us free samples of Rubberstone and specification data for our files.
NAME ....
FIRM ....
ADDRESS ....
ARCH. FORUM—DEC., 1925

Sacred Heart Seminary, Detroit, Mich.

Put the BULL-DOG on *your* Pay-roll

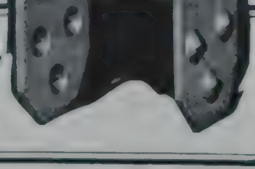
A Billion Dollars Worth of Modern Structures

If you asked us for direct proof of the practicability and economy of the Bull Dog method of anchoring wood floors to concrete, we could refer you to some of the finest buildings in America. Office buildings, schools, apartments, hotels—models of architectural genius and representing an investment of more than a billion dollars—have been built better and more economically during the past few years with Bull Dog Floor Clips.

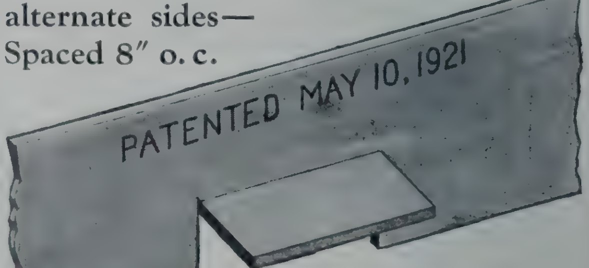
Have you a copy of "Six Quick Steps"? It shows exactly how much you save by using the Bull Dog method of floor anchorage. Ask for it and for samples of Bull Dog Floor Clips.

Bull Dog Floor Clip Co.
WINTERSET, IOWA
90 Branch Sales Offices
at Convenient Distributing Points

BULL DOG
Floor Clips



Anchors bent out on alternate sides—Spaced 8″ o. c.



Specify the most economical

BRASS TERRAZZO DIVIDING STRIP

on the market

Preferred by Practical Terrazzo Contractors because it is easily set, provides rigid edges, and insures perfect alignment.

Standard Specifications for Terrazzo work sent upon request.

GALASSI COMPANY
224 E. 22nd St. New York

"U. S." TILE FLOORING

"U. S." Tile in the laboratory of the Lenox Hill Hospital, New York City.

Floors that combine utility and beauty

It is no longer a matter of choice between the decorative floor and the floor of utility. You can assure your clients both decorative appearance and long-lived utility in the same specification—"U. S." Tile.

"U. S." Tile Flooring, skilfully compounded of finest rubber, fulfills every requisite for satisfactory floor service. Years of experience in rubber floor manufacture have enabled us to perfect a process which strengthens and toughens the product without detracting from the natural life and resiliency of the rubber.

Service records prove that "U. S." Tile has a durability that approaches permanency. Upkeep costs are reduced to a minimum. Resilient comfort is assured. The unique acoustic properties of "U. S." Tile materially reduce traffic noises. The non-absorbent tiles, tightly cemented together, can not accumulate dirt and germs. Surface stains of dirt, grease, or medicinal solutions are quickly and easily removed.

"U. S. Tile is made in a large variety of attractive designs and color combinations, in either decorative or plain utility styles. The price ranges from $.75 to $1.40 per square foot including cost of laying.

Every installation of "U. S." Tile is backed by the reputation of the United States Rubber Company, the world's greatest rubber manufacturer.

Have you full information and samples of "U. S." Tile in your files? Write for the story of "U. S." Tile today.

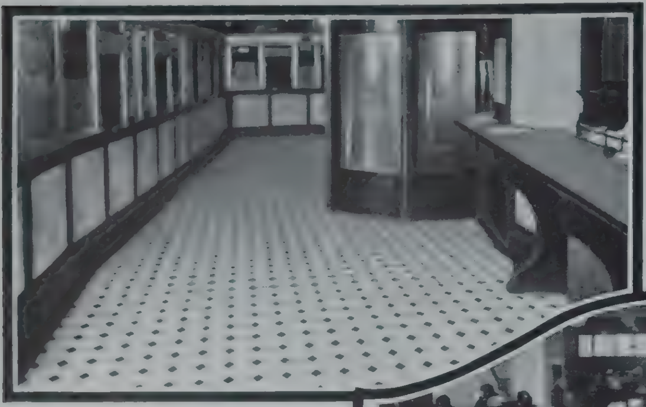
Style T-9, "U. S." Tile installed in Lenox Hill Hospital Laboratory

United States Rubber Company
Flooring Department
1790 Broadway, New York City

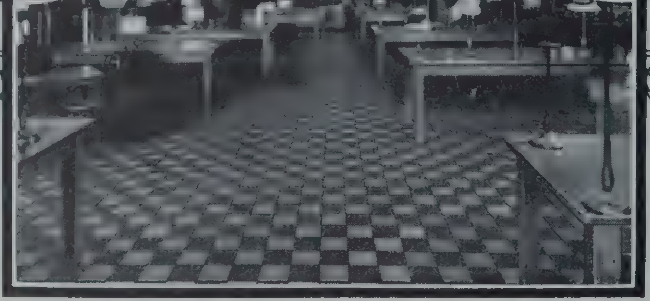
Trade Mark

Manufacturers of Rubber Flooring since 1897

The Linotile Trail Over the Continent



In the First National Bank at East St. Louis, Ill., Linotile is installed in the lobby and in the customers' space. The design is 6" x 6" white tile with alternate 2" x 2" black and red tile on the diagonal. The border is black



In the Mosenfelder Store in Rock Island, Ill., the handsome Linotile Floor is composed of 6" x 6" light and dark brown tile with ⅜" black joints and dark brown border.

In the residence of Mr. Harry C. Stutz, in Indianapolis, the Linotile floor aids in bringing out the beauty of this attractive sun parlor. This floor is composed of tiles 6" x 6" white, 2" x 2" white, 2" x 6" black, with a black and white border.

The Midwest Likes Linotile

A FEW TYPICAL MIDWEST INSTALLATIONS

Anheuser-Busch, Inc., Bevo Plant, St. Louis, Mo.
Drosden Jewelry Company, St. Louis, Mo.
St. Liborius Church, St. Louis, Mo.
Hermann Undertaking Parlors, St. Louis, Mo.
Missouri Pacific Hospital, St. Louis, Mo.
German St. Vincent's Orphan Association, Normandy, Mo.
Mr. Ridgely Young, Architect, (Residence) Wydown Terrace, Mo.
Stewart Warner Speedometer Co., Chicago, Ill.
State & Lake Theater, Chicago, Ill.
Municipal Contagious Hospital, Chicago, Ill.
Marquette High School, Milwaukee, Wis.
Herzberg Store, Omaha, Nebr.
Aquila Cort Tea Room, Omaha, Nebr.
Ft. Armstrong Theater, Rock Island, Ill.

A HOME, a store, and a bank—these, with the typical installations listed at the left, are indicative of the wide range of uses which the thriving and discriminating Midwest has found for Linotile floors.

One of the outstanding features of Linotile is its ready adaptability in color and design to the architectural and decorative plan of almost any type of room. Squares, oblongs, and strips of many sizes in twelve good colors permit of a variety sufficient to meet any requirement. In the colors and designs of Linotile floors are warmth and life for the home, dignity for the bank or church, or an effective background for store display.

In addition, Linotile is essentially a floor for service. It is resilient and comfortable underfoot and practically noiseless. It is nonabsorbent and sanitary. It retains its "newness." It is easily cleaned. And it lasts for years with practically no trace of wear.

Two books describe Linotile. "Linotile Floors for Residences" and "Linotile Floors for Public and Semi-Public Buildings." Either or both with sample tile will be sent on request.

ARMSTRONG CORK & INSULATION COMPANY
Division of Armstrong Cork Company
132 TWENTY-FOURTH STREET, PITTSBURGH, PA.
Also manufacturers of Armstrong's Cork Tile

Linotile Floors

Eliminating the Step at the Store Entrance

TRADE
NORTON
MARK

All types of Norton Floors are made permanently slip-proof, durable and quiet by the bonded electric furnace abrasive trade-marked "Alundum"—long used in the well-known Norton Grinding Wheels.

MODERN practice in store front design calls for the elimination of steps between the store and street levels. The use of a steep ramp is often the most practical way to accomplish this. That means a slip-proof walking surface if safety is to be considered.

Norton Floors products are especially suited for the purpose. Their surface is permanently slip-proof. Even water does not affect their non-slip properties. Thus no mats are necessary on rainy days. Norton Floors are unusually wear-resisting. They will stand up under the heaviest traffic.

There is a type of Norton Floor suitable for every class of entrance. Use one for your next store front job. It will win you the permanent good will of your clients.

NORTON COMPANY, WORCESTER, MASS.
New York Chicago Detroit Philadelphia Pittsburgh Hamilton, Ont.

NORTON FLOORS

Alundum Tiles, Treads and Aggregates

FLOORING

(1) *Insurance Exchange Building;* (3) *Lawyers' Building, Boston,* COOLIDGE & SHATTUCK, *Architects*
(2) *Central Building, Worcester, Mass.,* LOCKWOOD GREEN & CO., INC., *Architects*

REPEATED specification of Duraflex-A Flooring is one of the strongest evidences of its sterling quality and unusual economy. The three buildings above were designed for the same owner — The City Central Corporation — by architects who have repeatedly used Duraflex-A. A half-million square feet of this flooring are in these buildings. Its solid, seamless, rubbery surface is super-durable, resilient, proof against fire, water and acids, and saves 50% of the cost of cleaning and maintenance. *Your* choice if you will test it!

Write Today for Complete Information

The DURAFLEX COMPANY, Inc.

Main Office and Plant: BALTIMORE

OFFICES
Boston Philadelphia New York
Baltimore Washington

REPRESENTATIVES
Montreal, Can. Richmond
Cincinnati Greensboro, N. C.

There is no Substitute for Quality Duraflex

REPRESENTATIVES
Wilkes-Barre Greenville, S. C.
Reading, Pa. Atlanta
Cumberland, Md. Los Angeles
San Francisco

DURAFLEX-A

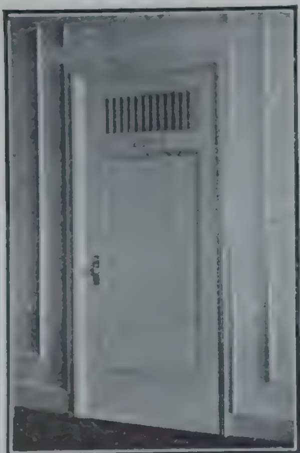
Here are 12 great buildings.
Do you recognize them?
You recognize their greatness.

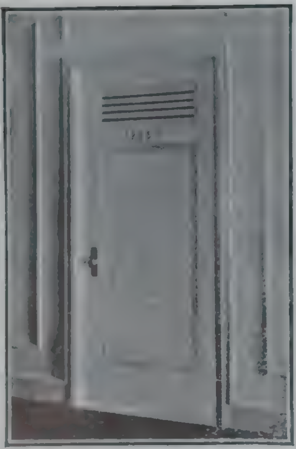
Eleven of them were built in winter time. Yet the cement work was not delayed by cold, and the brick mortar joints and floors are waterproofed and hardened.

Why? Because they are
MASTERBUILT with MASTERMIX
The Master Builders Co. Cleveland, Ohio.

1. Statler Hotel, Buffalo
2. Liggett Building
3. Canadian Pacific Building
4. Union Trust Co.
5. B. F. Keith Theatre Bldg.
6. Fisk Building
7. Pershing Square Building
8. American Surety Building
9. Saks Building
10. Insurance Exchange Bldg.
11. Field Museum
12. U. S. Naval Base

MASTERBUILT FLOORS





Notice the squatty appearance of the door at left caused by the horizontal openings. The vertical air passages of the Ventadoor above lend height and distinction to both panel and door.

You can specify efficiency *plus* beauty

ATTENTION to detail often is responsible for the success of a product. With this fact in mind great care was taken that the Ventadoor should be artistically correct as well as efficient.

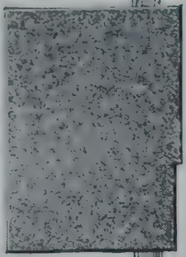
Two doors are shown above to illustrate this point. In one the air passages of the ventilating panel are horizontal, while in the Ventadoor (at right) they are vertical. Vertical openings were selected because they make the Ventadoor artistic in design and proportions and blend harmoniously with the lines of the door.

The Ventadoor is light and vision-proof, even when open, a feature which adds much to the comfort of the occupants of a room. The ventilating panel, controlled by a small knob, slides easily in marked contrast with the awkward and balky transom of former days.

We will gladly send you all details relating to construction, specification, cost and installation of Ventadoors to fill your requirements.

VAN ZILE VENTILATING CORPORATION
280 Madison Avenue, New York City

VENTADOOR
A ventilating panel for doors



136 fewer shingles, 272 fewer nails per square.

Shingles are self-spacing and 60 lbs. heavier per square.

A Durable and Economical Roof

Ruberoid Giant-shingles give architects and builders a composition shingle of unusual durability in which are embodied unique features of economy.

Extra size, extra thickness and unusual rigidity, coupled with the superior quality inherent in every Ruberoid Product, characterize this shingle. It makes a roof which is rugged in appearance and unquestionably the most durable of its kind.

The extra size of Ruberoid Giants and their self-spacing feature reduce the application cost nearly fifty percent over that of ordinary individual shingles. This saving in the cost of application enables you to use a more durable shingle at no increased total expense.

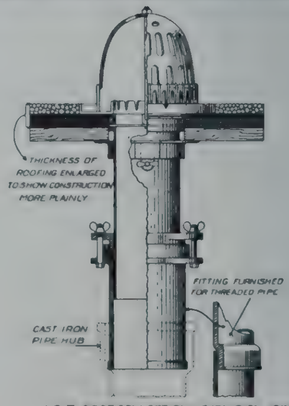
We shall be glad to tell you how this is accomplished. Write us today.

The RUBEROID Co.
95 Madison Avenue, New York
Chicago Boston

RU-BER-OID
Giant-shingles

There is but one Ruberoid. Look for the Man on the Label.

HOLT ROOF CONNECTIONS


THICKNESS OF ROOFING ENLARGED TO SHOW CONSTRUCTION MORE PLAINLY
FITTING FURNISHED FOR THREADED PIPE
CAST IRON PIPE HUB

HOLT ROOF CONNECTION—EXPANSION JOINT

HERE'S a cross-view section of Type 1 Holt Roof Connection. This type is used as a leader outlet on all flat roofs having interior drainage, except roofs covered with tile, brick or similar material.

Holt Roof Connections, with their air-tight, water-tight expansion joint, overcome all the defects of both rigid and loose-joint leader connections.

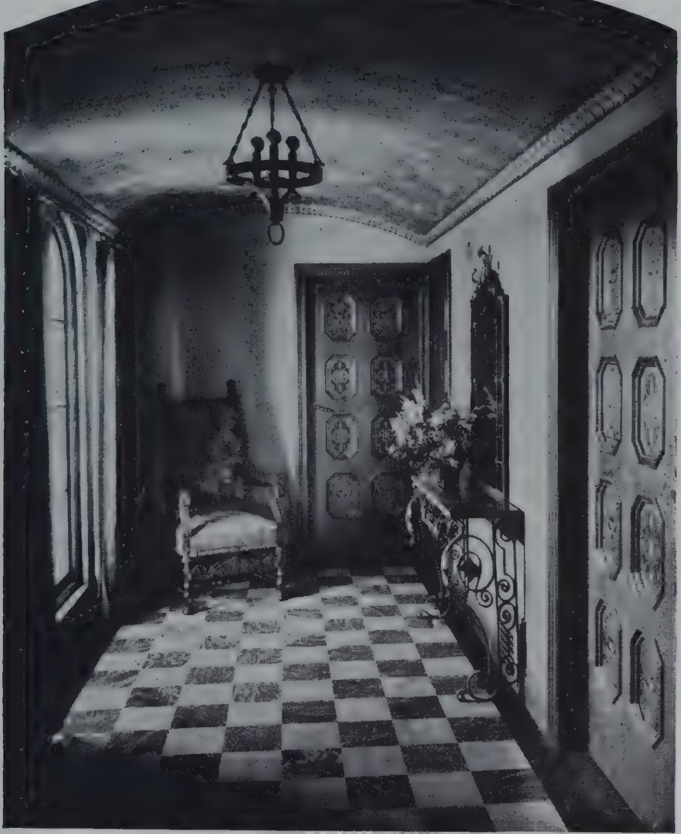
THE BARRETT COMPANY
40 Rector Street, New York City.
The Barrett Company, Limited
2021 St. Hubert Street, Montreal, Quebec, Canada

Armstrong's Linoleum

for Every Floor in the House

Look for the
CIRCLE A
trade-mark on
the burlap back

Ⓐ



How a California Realtor Made His Model House More Attractive by Using Linoleum

Here you see a glimpse of the entrance hall of a model home erected on Monterey Boulevard in Westwood Highlands, a suburb of San Francisco, by the California realty firm of Baldwin & Howell. The floor is Armstrong's Linoleum—a Marble Inlaid pattern, No. 72, with a narrow border of plain black linoleum.

Yes, It's Nice Enough For Even the Finest Of Your Fine Houses

"COULD I suggest such a thing as *linoleum* floors to my well-to-do clients—to a client, for instance, to whom the idea of economy is not a major appeal?"

If that's your thought as you see an Armstrong advertisement in magazine or newspaper, then here's some information you may be glad to get.

There are at least five real appeals, five big reasons why floors of modern Armstrong's Linoleum are as good for the $75,000 residence as for Mrs. Hogan's modest cottage. And here they are:

1. Style. Decorators on the Avenue, not to mention dozens of leading architects, not only recommend but actually are using Armstrong's Linoleum today to give atmosphere, charm, and distinction to the rooms of their houses.

2. Beauty. It's time now to forget the fact of linoleum's kitchen origin. Like Cinderella, modern linoleum has a beauty all its own. Ask to see our designs and you'll realize that this is so.

3. Durability. There are scores of cases on record where linoleum floors have seen forty and fifty years of service. It hasn't had time yet to wear out. Lay linoleum right and take the proper care of it and it's a permanent floor material—no more temporary than the rest of the interior trim.

4. Comfort. When you step on linoleum you feel the resilience of cork and rubber-like oxidized oil—you don't slip, you walk quietly and comfortably.

5. Maintenance. It's actually cheaper to wax and polish linoleum than to mop or scrub or wash any kind of floors. Think of eliminating the annoyance and disagreeableness on the one hand of wet mop and scrub brush, and on the other of periodic scraping and refinishing.

To get properly acquainted with this splendid flooring—linoleum—you should have our new book, "The Attractive Home, How To Plan Its Decoration." We'll be glad to mail you a copy if you'll write us for it. Address Armstrong Cork Company, Linoleum Division, Lancaster, Pa.

Unequaled for Black and Galvanized Sheets and Roofing Tin Plates. Keystone Quality gives greatest rust-resistance for roofing, siding, spouting, gutters, metal lath, and all exposed sheet metal work in the building construction field.

We are manufacturers of Sheet and Tin Mill products for all purposes—Black Sheets, Apollo and Apollo-Keystone Galvanized Sheets, Corrugated Sheets, Formed Roofing and Siding Products, Sheets for Special Purposes, Roofing Tin Plates, Bright Tin Plate, Black Plate, Etc. Sold by leading metal merchants.

Remember, when resistance to rust is a factor, it is important that you demand Keystone quality. Its greatest testimonial is its users.

Important railroads use Keystone for car roofing and new car construction.

The U. S. Reclamation Service, the U. S. Forestry Service, and Bureau of Public Roads use Keystone for construction of culverts and flumes.

Prominent septic tank and vault makers use Keystone for greater durability.

Successful architects, engineers, contractors, roofers and builders use Keystone for maximum wear and rust-resistance.

Leading burial vault and casket manufacturers use Keystone for increased permanence and protection underground, where both service and sentiment demand enduring quality.

Keystone Copper Steel demonstrated its excellence in the service tests of the American Society for Testing Materials. Could you ask for more thorough and impartial proof?

Users everywhere favor Keystone for all purposes requiring lasting service. Send for *"Facts."*

American Sheet and Tin Plate Company
General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Loui

Export Representatives: United States Steel Products Company, New York City
Pacific Coast Representatives: United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle

The distinctive SHADOW LINE that architects must have

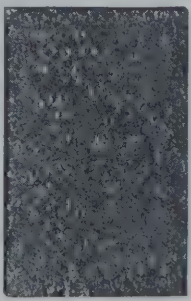
THE unusual thickness of "Massive" Weight Preston Shingles creates the definite shadow line that architects demand. It produces a roof that is thoroughly pleasing on the most exacting jobs.

This massive weight is much thicker than any other slate surfaced asphalt shingle on the market. It is approximately one-third thicker than a standard No. 1 slate shingle. Preston Rectangular Shingles are also made in "Extra Heavy" weight which is approximately as thick as a standard slate shingle.

Preston Massive Rectangular Shingles are made in three colors, Red, Blue-black and Sunset. Preston "Extra Heavy" Rectangular Shingles are made in four colors, Red, Blue-black, Green and Sunset.

The colors of Preston Shingles are produced by the natural tints of the slate and stone particles with which they are surfaced.

We shall be glad to send you samples of Preston Roofing.



KEYSTONE ROOFING MANUFACTURING CO.
Dept. D12, York, Pennsylvania

Preston ROOFING

PENRHYN STONE is the product of a series of quarries operating in the Penrhyn Hills on the border line of the State of Vermont.

The wonderful texture and coloring of this material allows of harmonious combinations that are adaptable to any type of Architecture or period reproduction. The various shades and variegated colorings of Purple, Grey, Green, Brown, etc., are so intermingled and weathered that a newly laid roof has all the aged appearance that is characteristic of the roofs on the ancient Castles and homes in England.

Penrhyn Stone is produced by skilled craftsmen and quarried, split, and trimmed entirely by hand into such sizes and thicknesses that each individual roof requires as determined by a study of the Architect's plans.

Our Architectural Department in New York will be pleased to prepare estimates and make suggestions based on any plans submitted—this service is without charge and all plans will be promptly returned.

PENRHYN STONE TERRACE and PORCH FLOORINGS
GARDEN WALKS : SLATE TILE : BASE : COPING : STEPS : ETC.

PENNA OFFICE
DRAKE BUILDING
EASTON PA.

W J. W. WILLIAMS SLATE Co. W
(A VERMONT CORPORATION)
PRODUCERS OF HIGHEST QUALITY
SLATE ROOFS AND SLATE SPECIALTIES

VERMONT OFFICE
POULTNEY
VERMONT

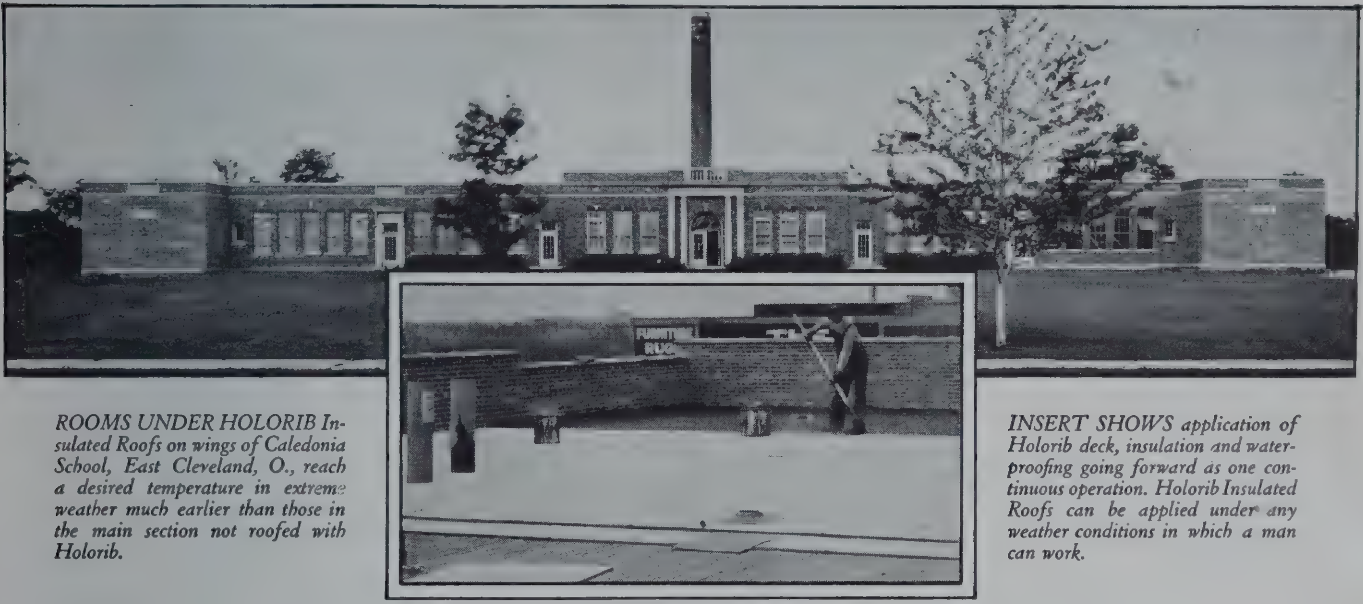
Architectural Service Department: 103 Park Ave., New York

HOLORIB

PATENT APPLIED FOR

TRADE MARK

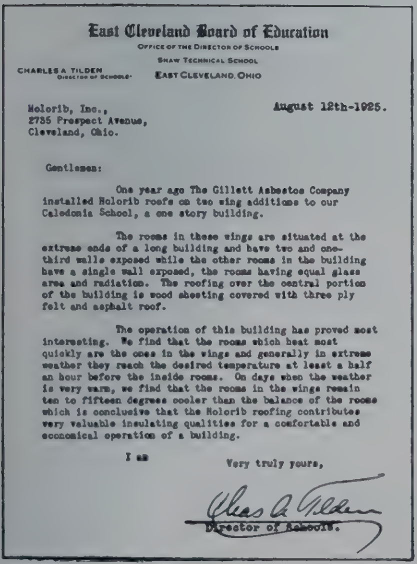
INSULATED ROOFS



ROOMS UNDER HOLORIB Insulated Roofs on wings of Caledonia School, East Cleveland, O., reach a desired temperature in extreme weather much earlier than those in the main section not roofed with Holorib.

INSERT SHOWS application of Holorib deck, insulation and waterproofing going forward as one continuous operation. Holorib Insulated Roofs can be applied under any weather conditions in which a man can work.

Does Your Roof Leak?



East Cleveland Board of Education
OFFICE OF THE DIRECTOR OF SCHOOLS
SHAW TECHNICAL SCHOOL
EAST CLEVELAND, OHIO

CHARLES A. TILDEN
DIRECTOR OF SCHOOLS

August 12th-1925.

Holorib, Inc.,
2735 Prospect Avenue,
Cleveland, Ohio.

Gentlemen:

One year ago The Gillett Asbestos Company installed Holorib roofs on two wing additions to our Caledonia School, a one story building.

The rooms in these wings are situated at the extreme ends of a long building and have two and one-third walls exposed while the other rooms in the building have a single wall exposed, the rooms having equal glass area and radiation. The roofing over the central portion of the building is wood sheeting covered with three ply felt and asphalt roof.

The operation of this building has proved most interesting. We find that the rooms which heat most quickly are the ones in the wings and generally in extreme weather they reach the desired temperature at least a half an hour before the inside rooms. On days when the weather is very warm, we find that the rooms in the wings remain ten to fifteen degrees cooler than the balance of the rooms which is conclusive that the Holorib roofing contributes very valuable insulating qualities for a comfortable and economical operation of a building.

I am

Very truly yours,

Chas A. Tilden
Director of Schools.

WATERPROOFING is not the only roof protection required. Many a watertight roof leaks heat, thousands of dollars' worth during its lifetime because, while waterproof, it does not provide an impervious barrier to loss of heat.

Holorib Insulated Roofs supply maximum insulation, completely preventing condensation and decay, stopping fuel waste and producing even temperature conditions.

A Holorib Roof deck, the lightest permanent deck in existence, pays for itself by allowing minimum weights of structural members from foundation up, without sacrifice of structural strength.

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are modern to the last detail of equipment, and central vacuum cleaning systems are to be found in practically all the newer buildings.

Because of its economy and efficiency The Spencer Central Cleaning System is specified in many of the finest college buildings.

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HESS CABINETS and MIRRORS
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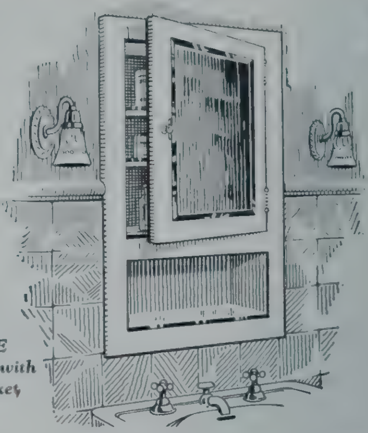

STYLE E to recess with open pocket below.

HESS Cabinets and Mirrors are ***matchless*** in their satiny snow-white coats;— ***hand rubbed*** in the manner the finest furniture is finished. Best polished plate glass mirrors, brass handles and hinges, heavily nickel plated.

They are suitable for the finest bathrooms,— low enough in price for the moderate price builder.

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We are proud of the fact that the "GLOBE" is providing assured and efficient ventilation for school buildings in practically every state in the Union.

Strongly constructed of heavy rust-resisting material and rigidly braced, it can be relied upon to provide absolute and continuous ventilation as long as the building stands.

GLOBE VENTILATOR CO., Dept. F., TROY, N. Y.

Interior of H. S. SNYDER'S residence, *Farmersville, Pa.*
DUNCAN FRASER, *Architect, New York City*

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No matter how skillfully they may be concealed or adorned, radiators invariably occupy space which might well be put to better use.

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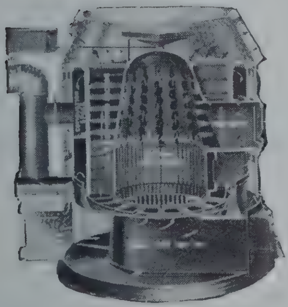
But the main consideration is the quality of the heat. Instead of dry reheated air, the Kelsey circulates through the house a constant stream of pure, fresh air.

And it is never dry air, with its pernicious effect on both humans and furniture. The Automatic Humidifier adds just enough, and never too much, moisture; in fact, restores the air to its natural condition and conserves the health of the family.



Note the hollow zig zag heating tubes which form the fire-pot and combustion chamber; the long fire travel on all sides of the heating tubes; the extra heating space between inner and outer cases; the automatic humidifier.

Our booklet, "Kelsey Systems of Heating and Ventilating, Gravity and Mechanical," is filled with information of value to architects. We will gladly send it upon request.

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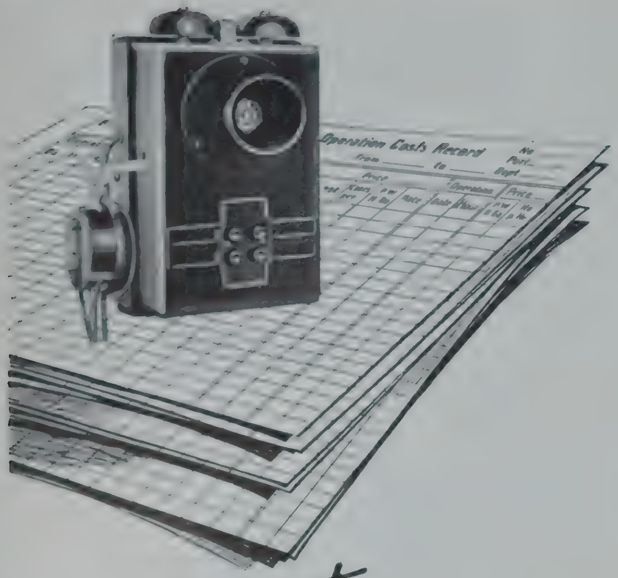
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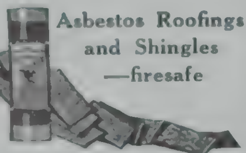

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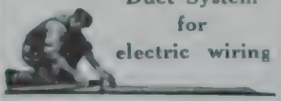

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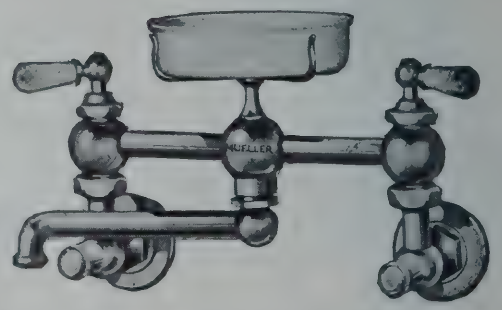

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faucets without a fault

166

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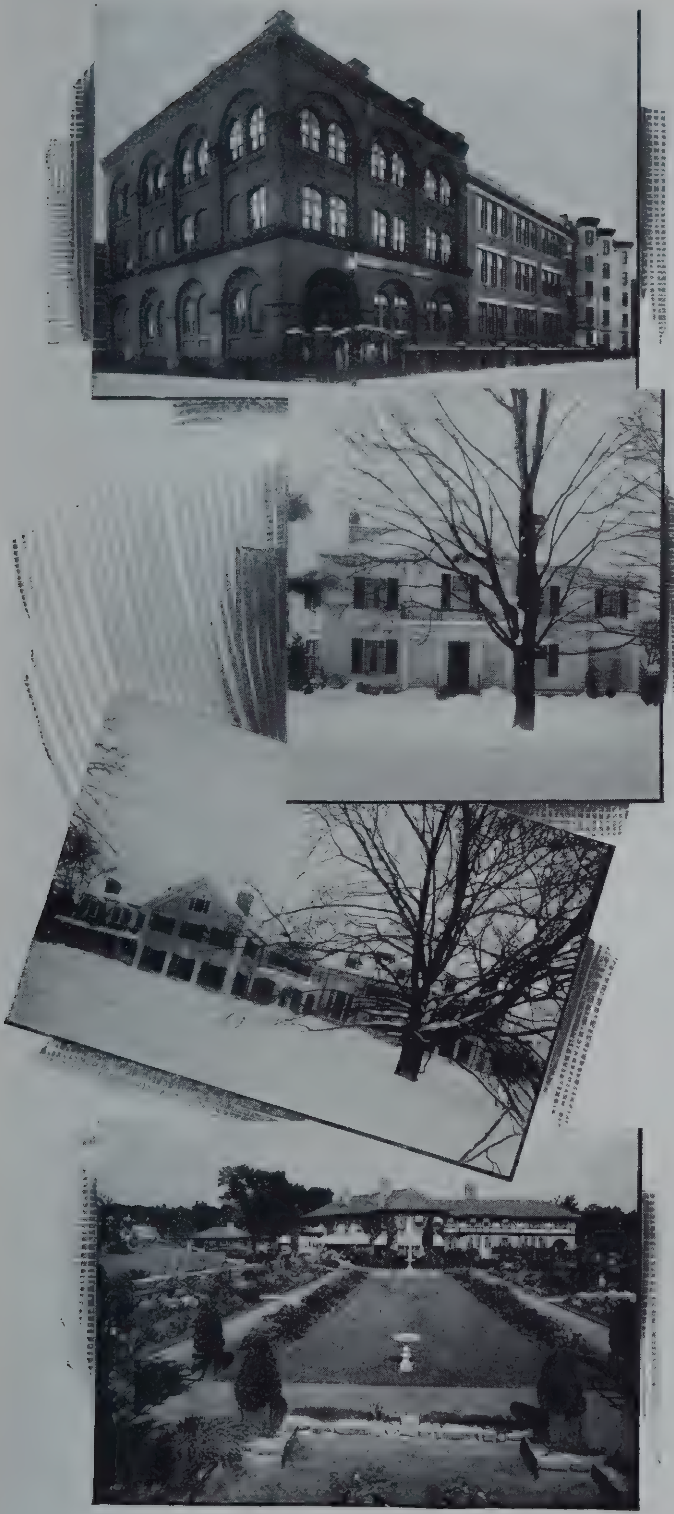

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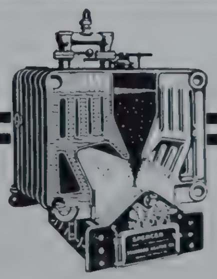

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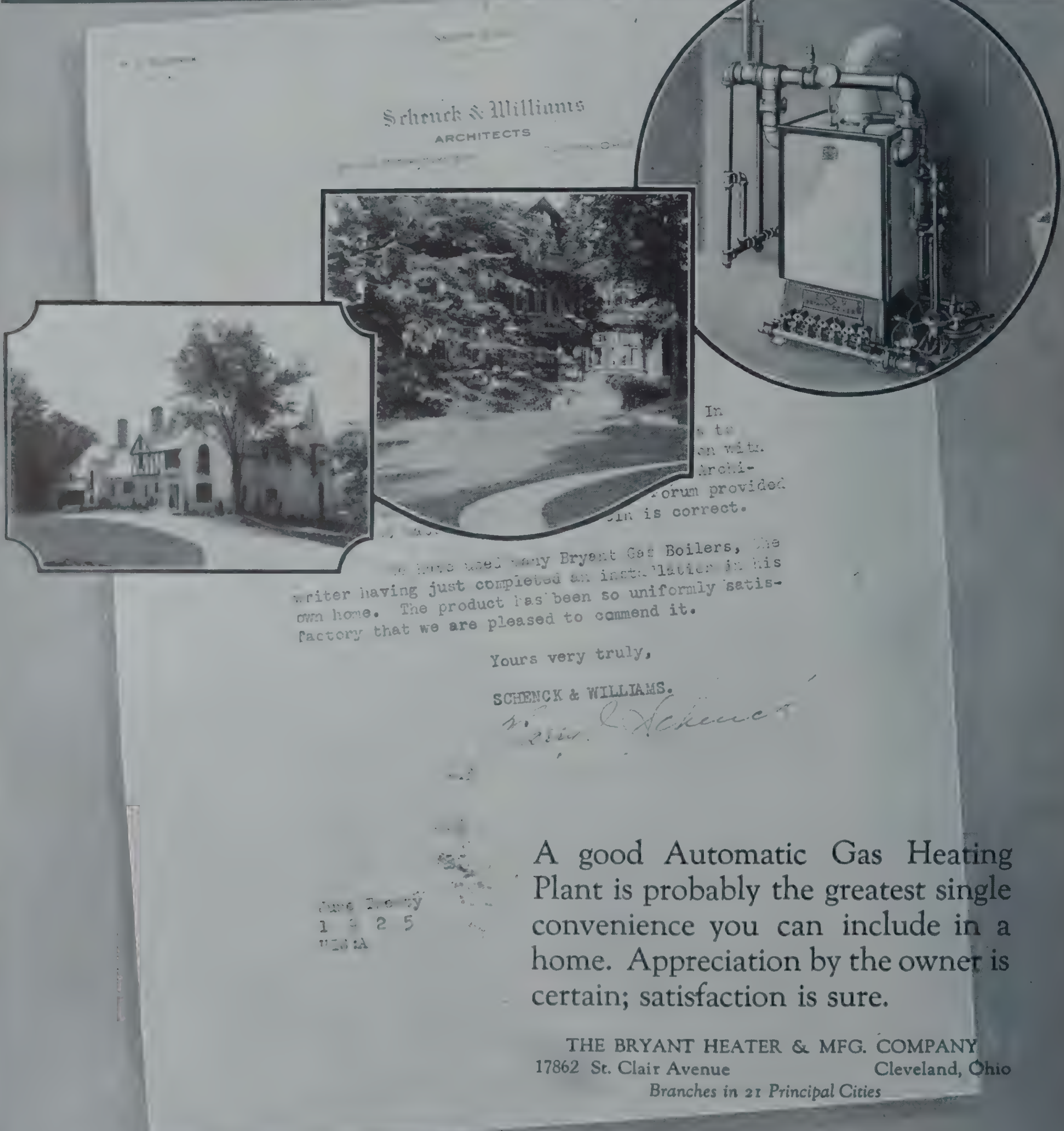

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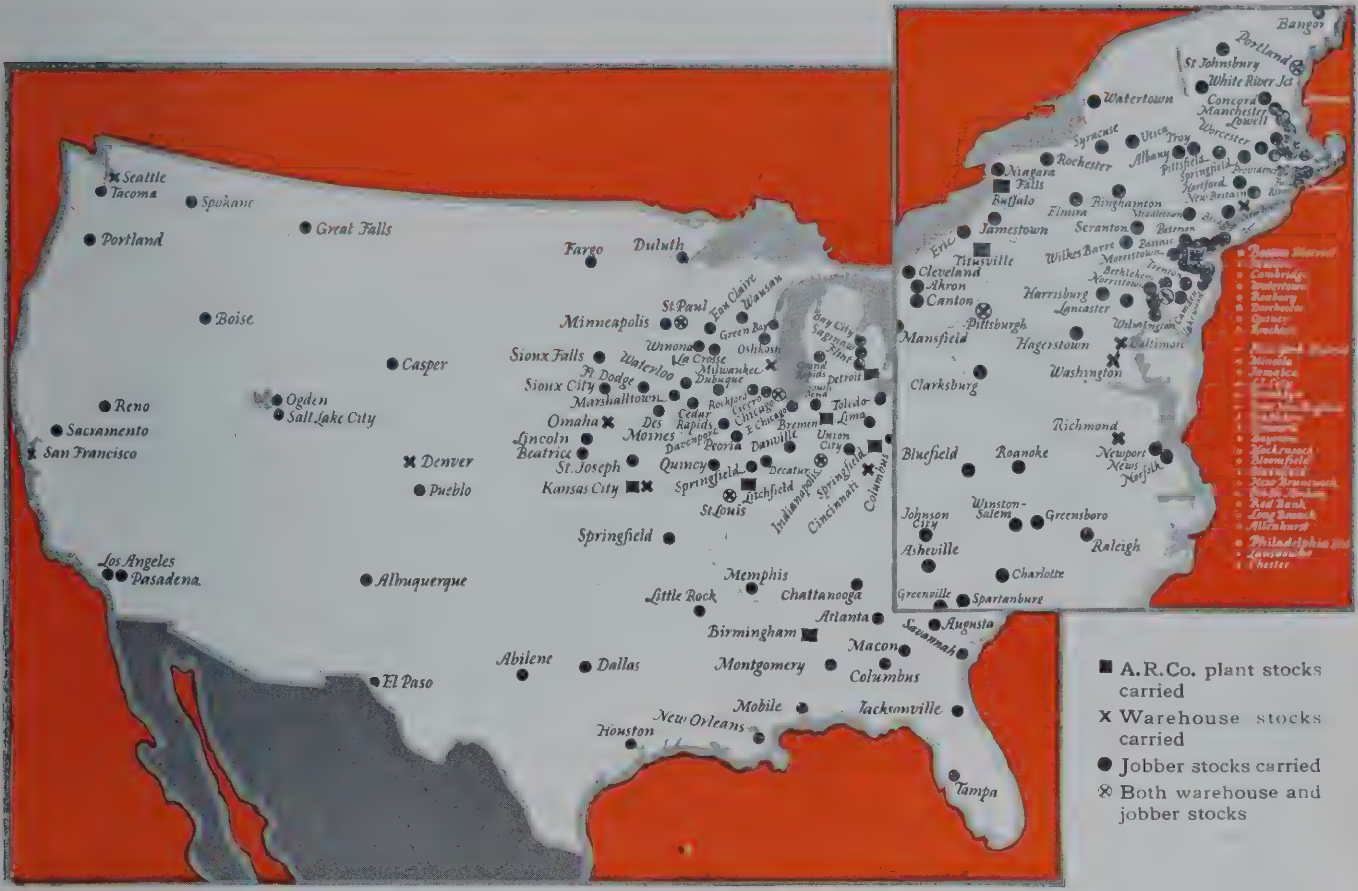

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HERE'S the new Permanent Wall Fixture for the American Blower Reversible Ventilating Fan. It represents the greatest improvement in the modern kitchen since the range replaced the old coal stove. It has ten big advantages, yet its cost is within the reach of all.

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Built-in ventilation gives you these great advantages:

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8. *Enables the kitchen to be placed in any position.*
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10. *It is noiseless, trouble free, and out of the way.*

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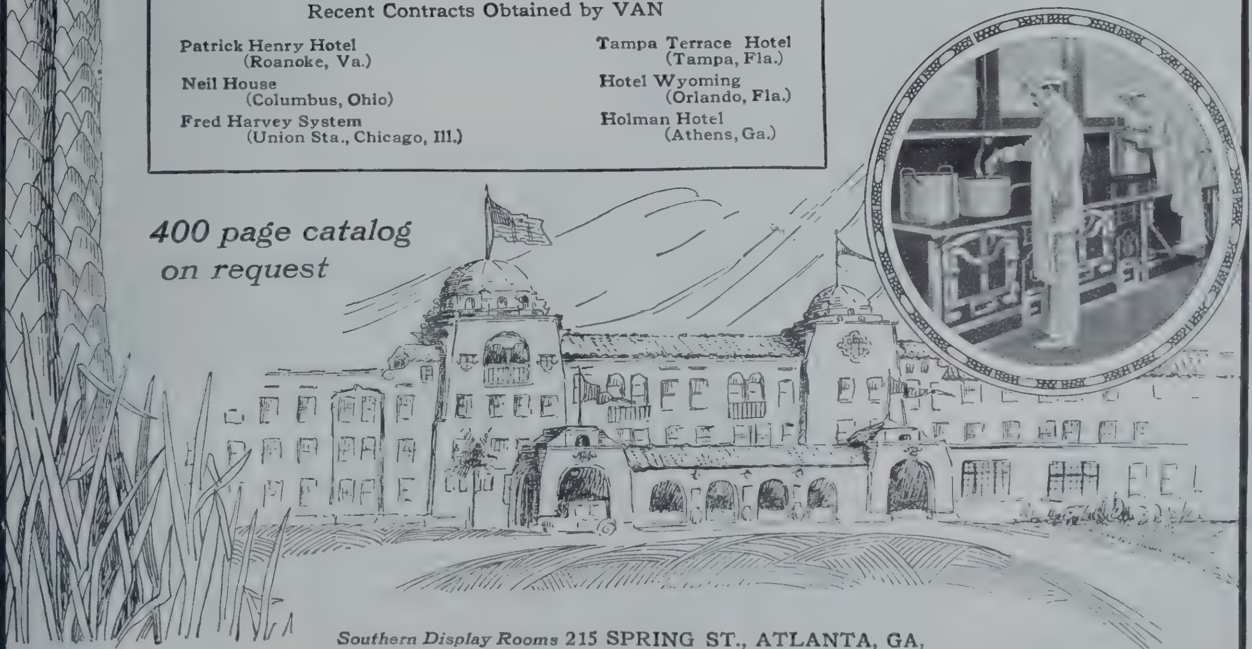

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Exterior of Trinity College, Washington, D. C. This beautiful structure is one of the leading educational institutions in the Capitol City. Of course, its kitchen is VULCAN *equipped.*

The Problem: Two things are essential in university kitchens—*speed and economy* Every lunch-hour is rush-hour. Students are anxious to finish their meals quickly so as to have as much time to themselves before returning to classes. And, of course, prices *must* be low.

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The Solution: The experience of hundreds of the leading colleges and universities has proven GAS to be the fastest, cleanest, most economical fuel for heavy-duty cooking. Gas ranges, because they are easier to control and more economical to operate, are therefore a partial answer to your problem.

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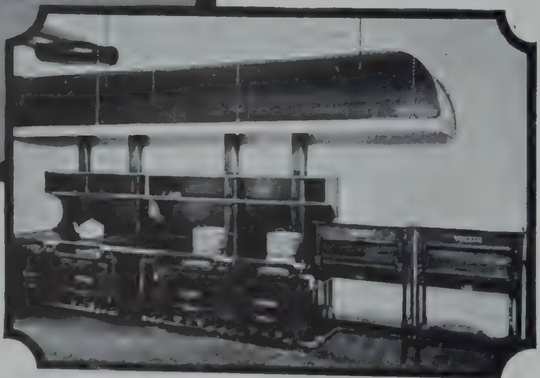

The modern kitchen of Trinity College where four No. 1751 VULCAN *Ranges and two No. 789 Griddles, Broilers and Toasters have been installed by Edgar Morris Sales Company of Washington.*

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Architects *now planning university kitchens should secure a copy of our valuable booklet "Planning College Kitchens to Save Space and Money". Write for your copy today—gratis.*

Planning University Kitchens

MODERN Cooking Equipment

equipment, offer all the requirements essential for maximum cooking efficiency.

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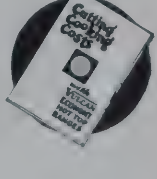

Residence of Edward F. Cagwin, 3275 Braemar Road, Shaker Heights, Cleveland, Ohio. Architects, Brooke & Burrows, Cleveland, Ohio. Kitchen equipped with New Process Lorain-equipped Gas Range. Smaller view below shows the stove installation.

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Lorain-equipped Gas Ranges make it possible for the housewife to be away for the entire afternoon while the evening meal (meat, vegetables and dessert) is being cooked, unwatched, with perfect results. When she returns home at 6 p. m., say, the whole meal is ready to be placed on the table.

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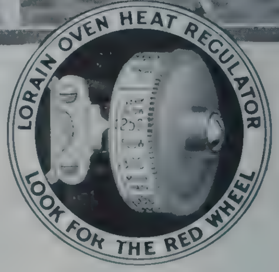

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Unless the Regulator has a RED WHEEL it is NOT a LORAIN

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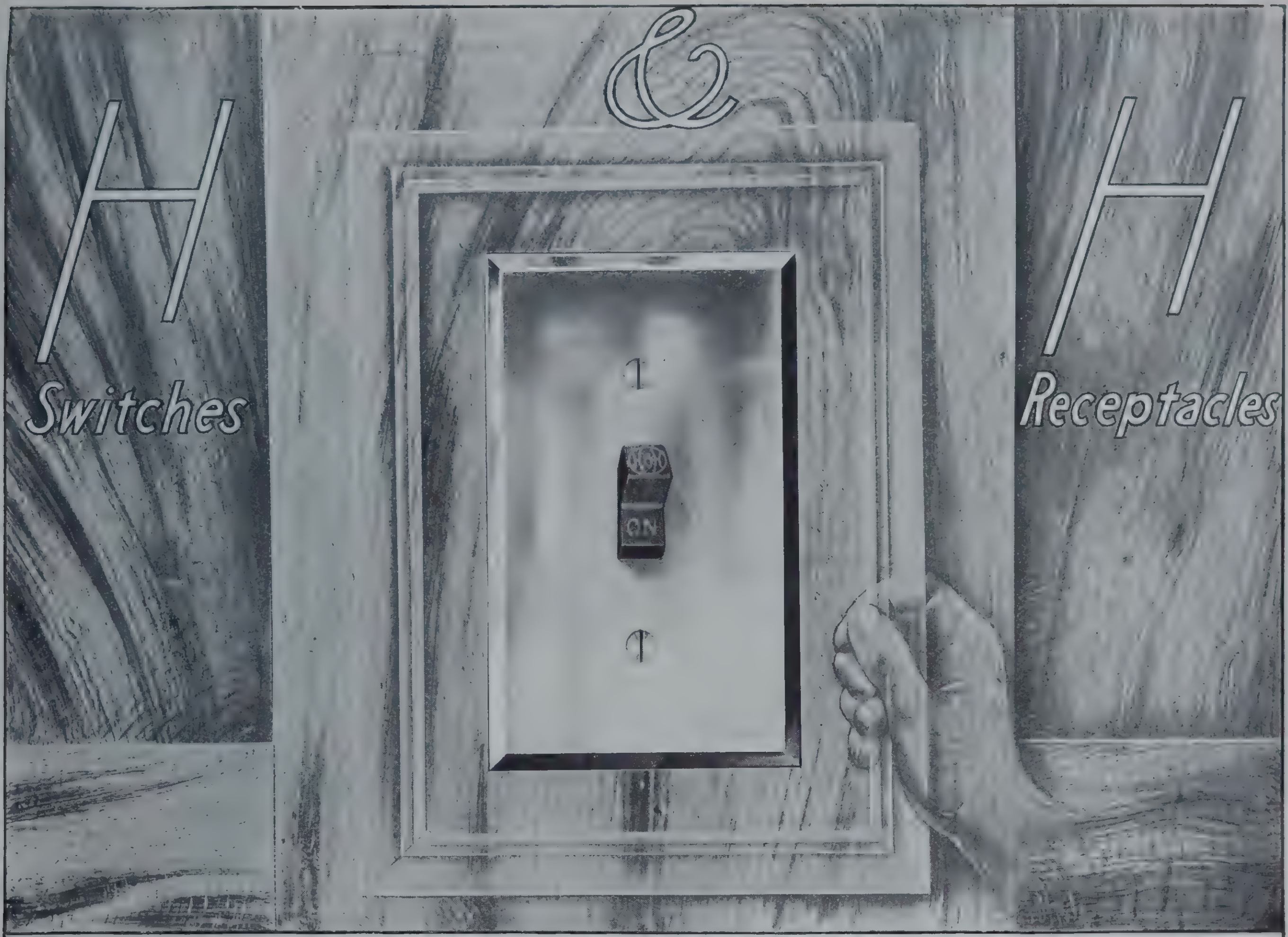
LORAIN OVEN HEAT REGULATOR



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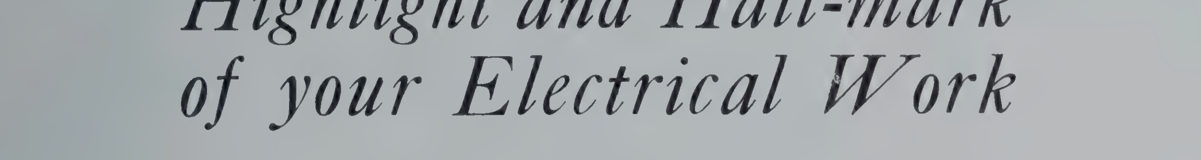

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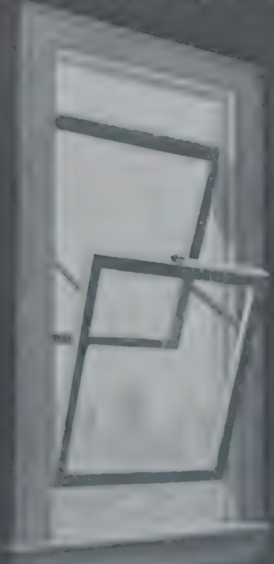

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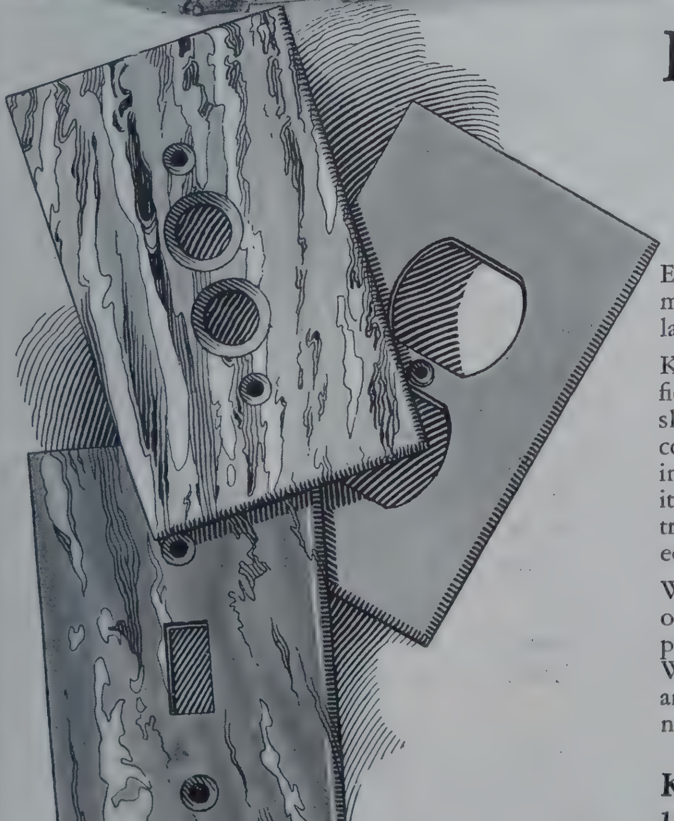

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Karolith, a raw material of unique advantages, was specified for the switch plates. Obtainable in any color, shade or mottle, permanent and unfading, a non-conductor of heat and electricity, taking and maintaining a beautiful, lustrous polish, easily worked or drilled, it offers new possibilities to architects, engineers, contractors and manufacturers of building hardware and equipment.

We shall be glad to put you in touch with the makers of a great variety of Karolith articles who can meet your present requirements or develop your ideas in Karolith. We can quote immediately on Karolith in sheets, rods and tubes in a large range of colors and combinations now in stock. Write us today.

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Crittall Reversible Windows possess every feature essential to the requirements of large universities, schools and office buildings.

Their narrow steel members give the maximum amount of light possible for any masonry opening. Ventilation may be varied from the slightest crevice to the entire window space (100 per cent).

Either leaf operates independently and remains rigidly in any desired position without the use of stays, weights or adjusters.

The services of our engineers are gladly placed at the disposal of architects for assistance in the solution of unusual window problems.

Catalogue 1-24 giving detailed description of Crittall Solid Steel Reversible Windows will be mailed on request.

All Crittall Casements and Windows are made of Crittalloy—the Copper Bearing Steel

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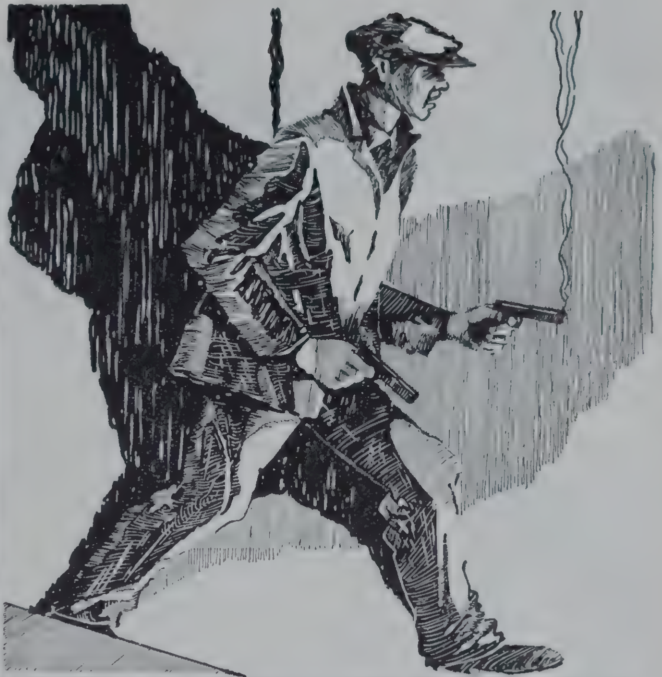

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At no time in history have banks had so great a need for reliable alarm systems. Current dailies give constant proof of the guerrilla warfare that bandits are waging on financial institutions.

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On all new bank construction do not fail to recommend the installation of a reliable bank alarm system—the Holtzer-Cabot. Call upon your older clients in the financial field and explain the benefits and security that a Holtzer-Cabot Bank Alarm System would allow.

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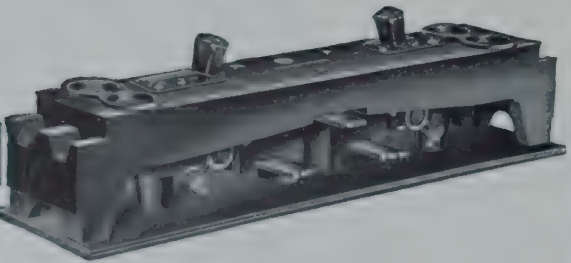

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This is life sized illustration of a standard FA 30 Amp. Tumbler Switch used on FA Panelboards

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He has installed every kind of panelboard capable of being specified—good, bad and "indifferent." And if he is the kind who takes pride in his work, you'll see him eye an FA Panelboard in the same pleased manner a Kentucky horseman inspects a Derby winner.

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Compare FA Panelboards with any other brand made. And then compare the price. FA Panelboards are not only a far better job, but the cost is actually less.

May we send you a practical hand book on Panelboards—the FA Catalog? It contains a wealth of valuable information not to be found elsewhere. No cost, no obligations—just your name, please.

Frank Adam
ELECTRIC COMPANY
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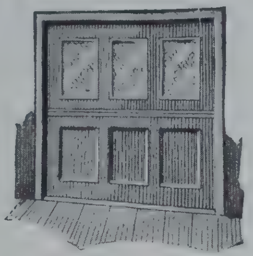
Three prime questions that should be asked about Freight Elevator Doors-



Peelle Kalamein Panelled Door, three lights of glass in upper half.

"DOES it answer the purpose?" "Is the price right?" "Just how long and how well will it serve?" These are the three important questions that should be asked about freight elevator doors. Just how satisfactorily Peelle answers, is evidenced by the great number of industrial buildings throughout America that are equipped with Peelle Freight Elevator Doors.

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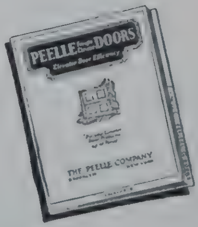
COUNTERBALANCED - TRUCKABLE
Freight
ELEVATOR DOORS

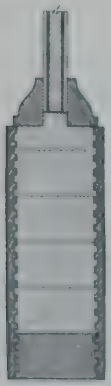


The Peelle Catalog, containing complete details, will be gladly sent on request.

HARKNESS MEMORIAL QUADRANGLE—YALE UNIVERSITY—JAMES GAMBLE ROGERS, *Architect*

College Doors Richly Designed—Built to Endure

The predominance of Compound Veneered Doors among America's universities and colleges testifies to the sturdiness of their construction and the experienced skill of the Compound organization in realizing the specifications of renowned architects.



Among the hundreds of universities, colleges, and other educational institutions where doors of our manufacture are now in intensive service are these:

YALE UNIVERSITY, Harkness Memorial Quadrangle
HARVARD UNIVERSITY, Widener Library, Lehman Hall
CORNELL UNIVERSITY, Barnard Hall
COLUMBIA UNIVERSITY, Women's Residence Hall
WILLIAMS COLLEGE, Dormitories
OHIO STATE UNIVERSITY, Engineering Building, Educational Building, Animal Husbandry Building
UNIVERSITY OF MICHIGAN, Literary Building, Physical Science Building, Waterman Gymnasium
VANDERBILT UNIVERSITY, Hospital Group
UNIVERSITY OF ILLINOIS, West Residence Hall, Men's Gymnasium, Library
DETROIT UNIVERSITY, Dormitory
SACRED HEART SEMINARY, Detroit
BOSTON COLLEGE, Science Building
IOWA STATE UNIVERSITY, Library
EXETER ACADEMY, Exeter, Mass.
EVANSTON HIGH SCHOOL, Evanston, Ill.
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SUPER DURABILITY

1. Five-ply panel.
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3. Sawed stile and rail veneers are 3/16" in thickness. The tongue-and-groove construction of the veneers affords fully twice the gluing surface of the ordinary flat veneer. Hence the rigid, durable, *compound* construction.

Our experience with college doors and college boys dates back many years. At one well-known school late home-comers removed door mouldings, knocked out panels, and entered the dormitory in the small hours. Upon being consulted we advised the use of another type of construction, where panels cannot be removed except by actually breaking in the door.

To be sure that the doors on your next structure are what you expect them to be, let us make them to order. Write for estimates on any design and quantity.

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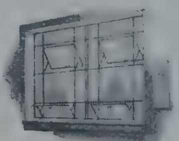
MADE BY AMERICA'S OLDEST VENEER DOOR SPECIALISTS

LUPTON

STEEL WINDOWS EVERYWHERE

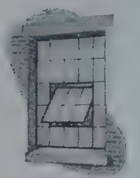
Other types of Lupton Windows

Projected Sash



First made by Lupton, this type of sash has met with constantly increasing popularity for factories, office buildings and schools. Easily operated ventilators stay open in any position. Made in Architectural and Industrial styles.

Pivoted Sash



The standard and accepted steel window for factories, stores, garages, warehouses and all sorts of business buildings. Rigidly built of solid copper-steel rolled sections. Made in 25 stock sizes for immediate shipment.

Heavy Casements

The highest grade steel windows for banks, libraries, clubs, office buildings or fine residences. They are made in six standard types and can be furnished to suit any size or shape of opening.

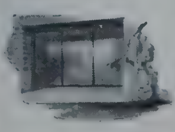
Counterbalanced

These windows make balanced ventilation automatic. When the lower sash is opened, the upper sash lowers an equal distance, thus providing an entrance for fresh air and an exit for exhausted air at the same time.

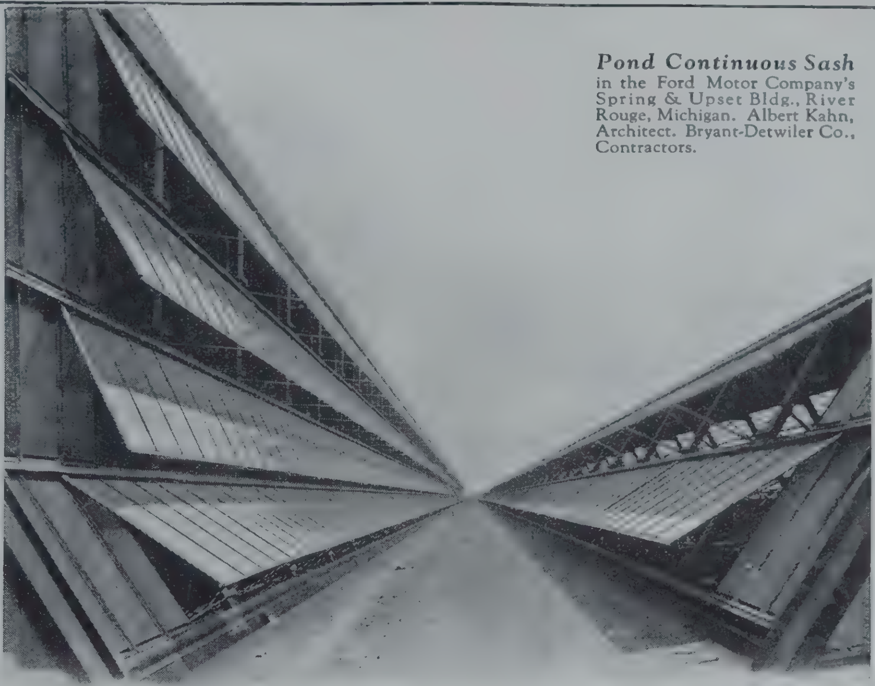
Residence Casements

Lupton residence casements embody a charm of line and a practicability of detail found in no other makes. Rigid, weathertight, and easy to install. Made in a variety of standard sizes to suit all requirements.

Basement



Lupton basement windows have transformed the lower part of the house to a bright, airy place. They give practically double the light of old-fashioned wood windows and never stick, rattle or warp. Made in four standard sizes.



Pond Continuous Sash in the Ford Motor Company's Spring & Upset Bldg., River Rouge, Michigan. Albert Kahn, Architect. Bryant-Detwiler Co., Contractors.

Pond Continuous Sash

POND Continuous Sash makes practical the use of extremely wide and long structures which heretofore have been impractical because it was not feasible to daylight and ventilate them properly. Through the combined weather protection and mass control it affords, it permits industrial buildings to be made larger and, at the same time, when properly designed, more hygienic and pleasant to work in.

Originally designed for use in roofs, Pond Continuous Sash is equally useful in side walls. It is particularly effective in connection with Pond Roof Design and Pond A-Frames.

Detailed information will be promptly furnished on request. Ask any branch office.

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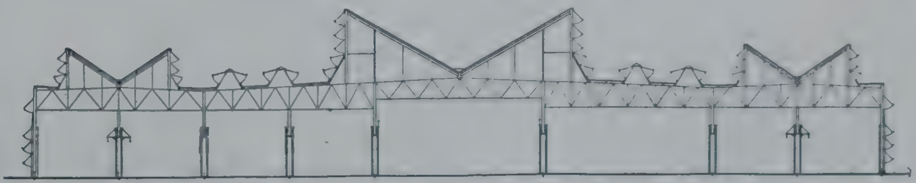

Cross section of Fairbanks-Morse plant, Beloit, Wis. C. A. Hardy, Engineer. This shows clearly the use of Pond Continuous Sash in connection with Pond Trusses and Pond A-Frames

ARCHITECTURAL *for Schools*

Tucson High School
Tucson, Arizona
Architects—Lyman & Place

J. M. Atherton High School
for Girls
Louisville, Ky.
Architects—Joseph & Joseph

Michigan Agricultural College
Lansing, Michigan
Architect—E. A. Boyd

THAT leading architects recognize the advantages of Fenestra Reversible Windows, is shown by the hundreds of up-to-date schools in which these windows have been specified. A few of these modern school structures are illustrated here.

The various types of Fenestra Windows conform readily to the architectural and structural demands of the designer and builder.

"*Reversible*" windows, with ventilators hung at the top or bottom, open out or in;—"*Counterbalanced*" windows slide vertically and open equally at top and bottom;—"*Casement*" windows, which are hinged at the side, swing out:—all of these designs have been used in school buildings with pleasing architectural results.

All of these provide more light, better ventilation, and greater fire protection than the ordinary wood window. All are easy to operate; convenient to shade; accessible for washing from the inside. All have small glass lights economically replaced when broken.

South Side High School
Toledo, Ohio
Architect—E. M. McGee

FENESTRA
and Universities

Roosevelt High School
Dayton, Ohio
Architects—Schenk & Williams

South Side High School
Rockville Center, Long Island
Architect—Huse T. Blanchard

And of equal importance is the localized service which is an exclusive characteristic of the Fenestra organization. Carefully designed window layouts, accurate detailing, prompt shipment and satisfactory erection by the Fenestra Construction Co., are all part of the responsibility assumed by our local offices and carried through without reference to the Factory at Detroit. This localized service is immediately available wherever construction work is contemplated.

At the other end of your telephone is a Fenestra sales engineer, waiting to answer your call. He is backed by a fully stocked warehouse and a staff of experts especially trained in window designing and service.

Leland Stanford Junior University Library
Palo Alto, California
Architects—Bakewell & Browne

DETROIT STEEL PRODUCTS COMPANY
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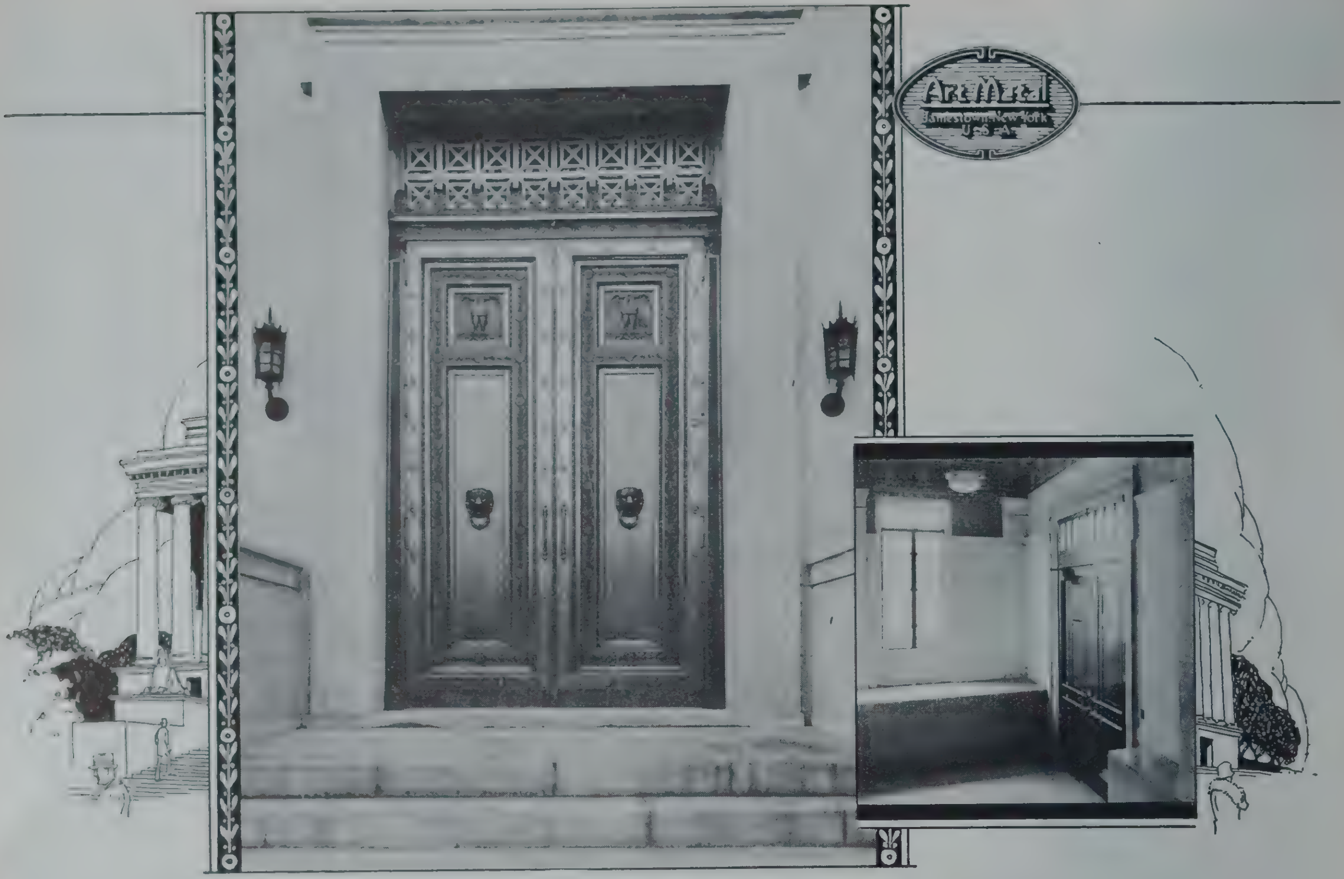
160 River Street, Toronto, Ont.

Fenestra

for schools and institutions
homes and apartments
commercial buildings
all industrial structures



Bronze Entrance Doors by ART METAL in the Scottish Rite Cathedral, San Antonio, Texas. Ralph H. Cameron, Architect.

Hollow Metal Doors by ART METAL

Here, in these stately entrance doors of the beautiful Scottish Rite Cathedral, San Antonio, Texas, is demonstrated anew the ability of ART METAL Engineers and Craftsmen to co-ordinate with the Architect.

They bear striking witness to the perfection of detail and the successful execution of ideas characteristic of *every* ART METAL installation.

ART METAL is glad to put at the disposal of Architects and Builders the complete facilities of their exceptional Engineering Department in working out problems of every kind in hollow metal work.

Let us consult with you on your next project requiring a Hollow Metal installation

Ready Now!

The new 160-page Art Metal Catalog "Hollow Metal Doors and Trim" will be sent to executives in offices of architects and contractors when requested on their letterhead.

Art Metal Construction Co.
Jamestown N. Y.

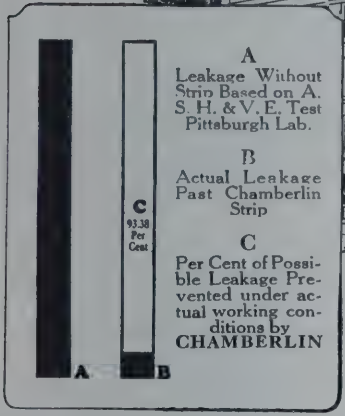
Art Metal

JAMESTOWN, NEW YORK

Branch Offices: New York, Chicago, Boston, Cleveland, Buffalo, Pittsburgh, Detroit, St. Louis, Kansas City, Birmingham, Seattle, Hartford, Albany, Portland, Me., Cincinnati, Washington, D. C., Baltimore, Dallas, Minneapolis, Philadelphia, Indianapolis

Chamberlin Strip in Use 22 Years Prevents 93.38% In-leakage of Air

Horace Mann School
New York City
Equipped in 1903 with Chamberlin Metal Weather Strips.



How Chamberlin Tests are Made

Chamberlin installation tests are made by placing an air collection chamber over the entire inside of a window. Opposite doors and windows are opened to aggravate circulation. The in-leakage past the strip is measured with an anemometer. Windows are not specially prepared for test and are always on the windward side of a building. In-leakage always includes leakages through the frame and pulley holes.

Time Test Gives True Measure of Weather Strip Value

Tests made April 11, 1925, of Chamberlin Weather Strips installed twenty-two years ago on the Horace Mann School, New York City again reveal the lifetime efficiency of Chamberlin design and installation.

Actual leakage through windows with 20.67 lineal feet of crack, was only 1.87 cu. feet per minute. 93.38% of possible in-leakage of air was effectually prevented by the Chamberlin strip.

Although a pioneer in the development of the tongue and groove design and of the corrugated strip, Chamberlin has always regarded *installation* as a factor equally important as design.

Because only Chamberlin experts perfectly trained to their work, are allowed to fit and install Chamberlin Weather Strip, we are able to guarantee every installation for the life of the building.

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"SINCE 1893-THE STANDARD"

We invite architects and builders to make use of our nation-wide sales and service organization

New Catalog Just Out — Send For It

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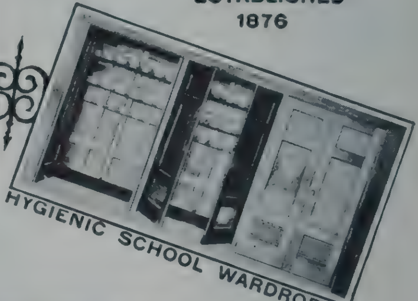

HYGIENIC SCHOOL WARDROBES

VENETIAN & AWNING BLINDS

ROLLING PARTITIONS

AIRKORE FIRE DOORS

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THE J. G. WILSON CORPORATION, 11 E. 38TH ST., N. Y. C.

PROVINCIAL HOUSES IN SPAIN

By Arthur Byne & Mildred Stapley

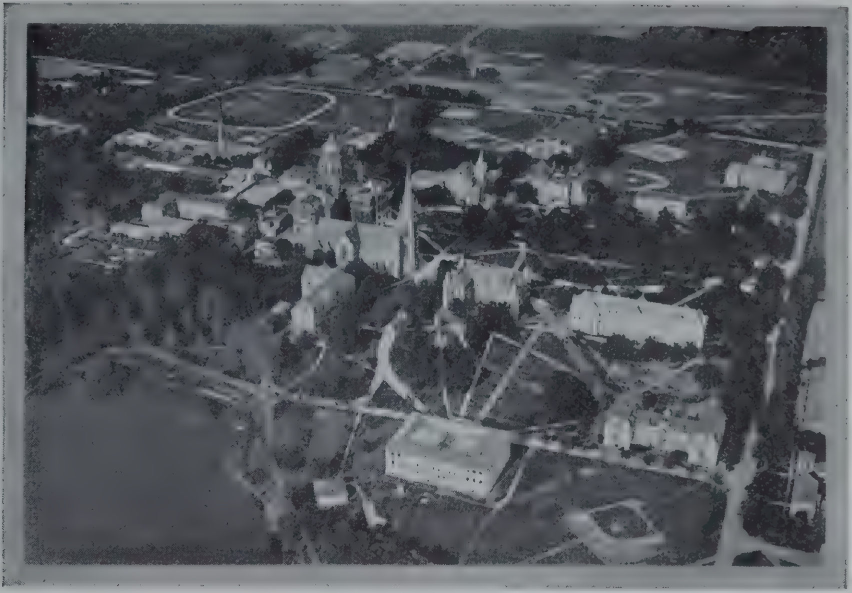
ARCHITECTS value Spanish types of domestic architecture because of their simplicity of design and plan and also because they are easily developed in materials inexpensive and easily had. Spain offers a choice of several kinds of residence architecture, types sufficiently different from one another to afford considerable range of selection, yet all possessing the same strength and virility, the excellent lines, the same graceful but unaffected grouping, and the discriminating use of detail which renders distinguished so many Spanish domestic buildings.

Houses in various parts of the Spanish peninsula, particularly the buildings of medium size in rural districts or provincial towns, offer excellent precedent for use in different parts of America where climate conditions are about what prevail in the provinces of Spain.

IN this volume two well known writers on Spanish architecture and decoration review the various forms which are given to the small or medium sized house in Spain. To render the work as helpful as possible to architects, the authors have included many plans and drawings of different kinds, details of such exterior parts of buildings as friezes, cornices, windows, timber overhangs, soffits and balconies, or of such interior parts of the structure as ceilings, fireplaces, doors and stairways. Part of the work deals with the tiles, pottery, ironwork, plaster in relief and the other forms of craftsmanship which contribute so much to the excellence of domestic architecture in Spain. It is a work likely to be invaluable to the designer.

The book contains text and 190 plates 12½x16 inches, and is bound in cloth. Price $25, postpaid.

ROGERS & MANSON COMPANY, 383 Madison Avenue, New York



Aerial View of the University of Notre Dame, Notre Dame, Ind. Founded 1843. Present enrollment more than 2100 students. This large group of buildings is heated thruout by a Webster Vacuum System of Steam Heating from a central heating plant.

"—dated June 27th, 1899"

THERE is a wide difference between sales and service—a wide difference between promise and performance ...... *Witness:* the Webster Vacuum System installation at the University of Notre Dame. The first proposal for a Webster Vacuum System was dated June 27th, 1899. The first Webster installation was completed in 1900 and contained 16,913 square feet of radiation ...... And then—twenty five years of Webster Service ...... As additions and changes were made the Webster Vacuum System kept pace with the growth of the institution. New developments in the art of heating were promptly incorporated as the system was extended to all the new buildings. Today this 25-year-old Webster Vacuum System of Steam Heating is thoroughly up to date and contains 99,080 square feet of radiation.

We would like to give you the inside facts on Webster Service ..... We would like to tell you how Webster Service is working *with* architects, engineers and heating contractors—getting on the job at an early stage in the planning and never quitting during the life of the installation.

It pays to concentrate on selling and installing WEBSTER SYSTEMS of STEAM HEATING in small towns as well as big cities. One contractor* has installed 82 Webster Systems—52 of them in his home town of less than 5000 population. He had no competition on most of them. Are you overlooking this opportunity? Ask us about it.

*Name on request.

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More than 34,000 installations in America's finer buildings

1 The base is Ohio Metal (copper bearing steel) highly rust resistant and providing maximum strength and rigidity.

2 The base is Terne coated (combination of lead and tin) dispensing with acid pickling which might leave some traces of acid in the seam.

3 AFTER forming the pipe is *dipped by hand* in pure zinc, giving a complete protection both inside and outside to surfaces, edges and seams, and the heaviest zinc coating possible to obtain.

"Inasmuch as it is the policy of the Wheeling Corrugating Company to provide its customers with maximum value, the manufacture and stock of Conductor Pipe made of 29 gauge and lighter material has been discontinued. For best service, Conductor Pipe made of 28 gauge and heavier Galvanized Sheets is recommended."

Wheeling

Surfaces — Edges — Seams Protected from Rust by Zinc-Coating After Forming

An outer shell of pure zinc—a perfect shell of rust protection united with the base metal—gives Wheeling Hand Dipped Conductor Pipe enduring resistance to the elements and insures longer life. The full value of this protection is obtained by the Wheeling process of zinc-coating AFTER forming. Surfaces and edges are completely covered. Seams are permanently sealed.

Combined with this in Wheeling Hand Dipped Pipe is the rigid strength of copper bearing Ohio Metal, which constitutes the base structure. Damage by crushing, denting and other disfigurement is scarcely possible.

In developing this unusually serviceable conductor pipe Wheeling engineers took advantage of three fundamental factors in prolonging conductor life—copper-bearing steel, terne coating and hand dipping the *completed* product in pure zinc.

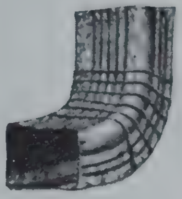
Specify Wheeling Dipped Conductor Pipe to insure a perfect job for any climate. Write for a sample—examine it—see for yourself that it is made to give you the most economical service you can buy.

WHEELING CORRUGATING COMPANY
WHEELING, W. VA.

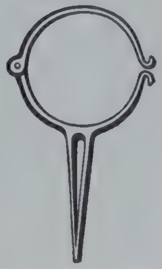
New York Chicago	Philadelphia St. Louis	Kansas City Chattanooga	Richmond Minneapolis

Wheeling Heavy Extra Coated Eaves-trough

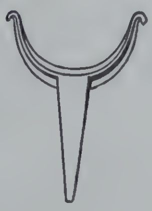
To provide complete equipment for all construction Wheeling Extra Coated Eaves-trough, made of Ohio Metal, is provided in both lap and slip joint styles. This is recommended for use with Wheeling Hand Dipped Conductor Pipe.



One piece Corrugated Conductor Pipe Elbows and shoes



Hinged hooks plain or corrugated for brick or wood



Round hooks wired

Galvanized Steel Wire Eaves-trough Hangers

HAND DIPPED Conductor Pipe

and Wheeling Building Materials

for

roofs, gutters, flashings, splash boards, drain boards, laundry equipment, food service equipment, clinical fittings.

Specify Monel Metal

for operating economy

You will be surprised at the number of places in a building where Monel Metal will prove to be "just the thing." We suggest that you talk over some of the principal uses for Monel Metal with your sheet metal worker.

To the architect, Monel Metal represents an opportunity—an opportunity to insure for his clients, long wear and low up-keep for those parts of a building which wear and which the elements ultimately destroy.

For parts of buildings exposed to the weather, Monel Metal is particularly desirable. It will not rust, and the corrosive attacks of dampness and atmosphere leave it unharmed. Yet it is so strong and tough that it lasts indefinitely under stress and strain. It is available in commercial forms. The sheet metal worker can supply it.

For food service equipment, Monel Metal is now generally accepted as standard. It is easily kept clean with a little soap and water; it will not rust and resists corrosion. It is so tough that it withstands indefinitely the severe treatment such equipment must receive. These same qualities make it invaluable for operating, bedside and instrument tables in hospitals. For laundry equipment, it is the ideal metal.

To make your files complete, you should have all the facts about Monel Metal.

For special information our technical staff is at your service.

Write to-day for all the facts.

ASK FOR "LIST B" OF MONEL METAL & NICKEL LITERATURE

THE INTERNATIONAL NICKEL COMPANY
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Monel Metal is a technically controlled Nickel-Copper alloy of high nickel content. It is mined, smelted, refined, rolled and marketed solely by the International Nickel Company. The name "Monel Metal" is a registered trade mark.

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MOnel metal

The Lawyers' Club of the University of Michigan; York and Sawyer, Architects, New York. Milcor (Patented) "Expansion" Corner Beads protect the wall corners in every room of this Building.

Give Your Clients Better Wall Corners Without Added Cost

YOU save more for your client than the slight additional cost of Milcor "Expansion" Corner Bead when you specify this unique corner bead, because you thus eliminate the expense of high priced mechanics' drilling and plugging concrete columns, or other heavy erection costs which mount up when installing ordinary types of corner beads.

Plasterers can set and plumb "Expansion" Corner Bead with about one-third the cost of labor required for erecting old style beads.

And the patented expanded metal wings of Expansion Corner Beads reinforce the inner and outer corners of the room, making them the strongest parts of the wall instead of the weakest.

MILWAUKEE CORRUGATING COMPANY
MILWAUKEE, WISCONSIN
Chicago, Ill., Kansas City, Mo., LaCrosse, Wis.

Send for Free Samples!

We shall be pleased to send you complimentary samples of this patented Milcor "Expansion" Corner Bead and specification data for your files, if you will send back the convenient Coupon or have your secretary drop a line to us.

MILCOR
METAL LATH TO REINFORCE AND PRESERVE
BETTER PLASTERING
EXPANDED METAL PRODUCTS
"Backbone of Better Plastering"

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Gentlemen:
Without obligation, please send me free samples of "Expansion" Corner Bead, and specification data for our files.

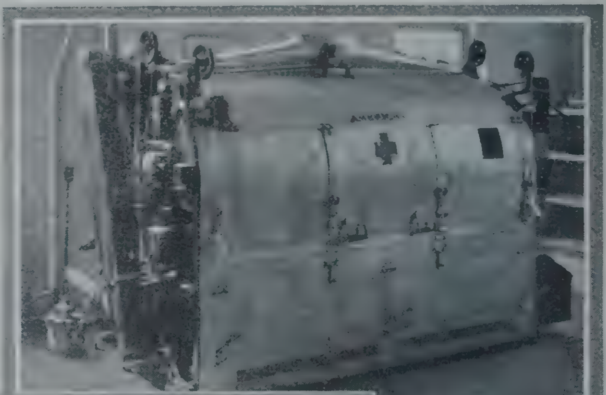
Name ....

Address ....

City & State ....

No. 15 of a series of advertisements featuring prominent laundry installations

PASADENA saw the *advantage*



Another view of the laundry showing the American Thermo-Vento Drying Tumbler

Corner of the "American" equipped laundry at the Pasadena High School

THE Board of Education of Pasadena, California, was quick to appreciate the advantage of installing a laundry department in connection with the magnificent new Pasadena High School.

Members of the Board saw the economy of having linens for the cafeteria and for domestic science classes laundered right on the premises—since it enables the school to maintain a smaller supply because of the rapidity with which the linens can be cleansed and returned to service.

They saw the advantage, too, of laundering athletic suits and towels under the direct supervision of the school's physical education department—In fact, today, more and more schools and colleges, as well as hotels, hospitals and institutions of every character consider a laundry department an increasingly important adjunct.

Engineers of The American Laundry Machinery Company designed and installed the laundry in the Pasadena High School, using "American" equipment exclusively throughout. At your request, we shall be glad to send you full particulars of this installation—or any of the installations featured in this series of advertisements.

At your service — a corps of laundry specialists

The American Laundry Machinery Company maintains a corps of engineers who have gained wide experience in planning and equipping most of this country's foremost hotel, commercial and institutional laundries.

If you have any questions pertaining to modern laundry practice, you will find consultation with these specialists advantageous. This service is gladly offered you without any obligation whatever.

The American Laundry Machinery Co.

***Norwood Station*, Cincinnati, Ohio**

THE CANADIAN LAUNDRY MACHINERY CO., LTD.
47-93 Sterling Road, Toronto 3, Ont., Canada
Agents: BRITISH-AMERICAN LAUNDRY MACHINERY CO., LTD.
Underhill St., Camden Town, London, N.W. 1, England

PASADENA HIGH SCHOOL, PASADENA, CALIF.
Architects: John C. Austin and Frederic M. Ashley, Los Angeles

THE MILLER HOSPITAL
"Handles With Care"

GLASS containers filled with liquid—surely here are fragile objects that should be handled with care. ℂ Yet, at the new Miller Hospital in Saint Paul, Minnesota, they are zipped up and down several floors from the far ends of the building, instantly and without damage. ℂ A vacuum tube system (four inch diameter) of pneumatic conveying has solved for all time what has been for years a troublesome problem in hospitals everywhere. ℂ It was indeed gratifying for the Standard Conveyor Company to be allowed to work on this installation with the Architect, Clarence H. Johnston. ℂ We'll be glad to send an analysis of this installation to interested architects.

STANDARD
CONVEYOR COMPANY
NORTH ST. PAUL, MINN.

These Detroit Buildings are equipped with 2700

Athey Perennial Window Shades

The Buhl Building, designed by Smith, Hinchman & Grylls (top)—the United States Mortgage Bond Building, designed by Harry S. Angell (center)—and the Detroit Free Press Building, designed by Albert Kahn (bottom)—are good examples of the fine buildings that are being equipped with Athey Perennial Window Shades.

Consider these Athey Features

Adjustability:

They can be raised from the bottom, or lowered from the top—folding like an accordion—permitting the shading of the part of the window that requires it, without shutting out all the light and air.

Eliminate Expense and Fire Hazard of Awnings:

They do everything an awning can do. With them, owners have discovered *awnings are unnecessary.*

Nothing to wear out or get out of order:

They have no latches, catches, springs or rollers to slip, stick or break. And the special Coutil Weave Herringbonecloth of which they are made is as near indestructible as any cloth can be made.

We know of many installations made 10 years ago that are still "on the job" and in good order, and appearance.

Athey Skylight Shades are equally as good as Athey Window Shades

Athey Products

SEE OUR CATALOGUE IN SWEETS

Perennial Window Shades Disappearing Partitions
Skylight Shades Cloth-Lined Metal Weatherstrips

Athey Company

6025 West 65th Street · Chicago, Illinois

In Canada: CRESSWELL-McINTOSH, REG'D.
270 Seigneurs St., Montreal, Quebec

L·O·KOVEN & BROTHER·Inc.

Engineers Machinists ✧ Galvanizers and Sheet Metal Workers ✧ Welders Boiler Makers

A Reserve Storage Tank

Two Hot Water Tanks

Even though your hot water storage tank be a Koven Galvanized Tank, sediment will collect in it. Since this sediment does not come from the tank itself, it must come from outside. Two storage tanks provide for continuous service.

Hotels and Apartments

Especially in hotels and apartments where satisfied guests and tenants mean "a full house" and 100% revenue on rentable space, it is necessary to provide a continuous supply of hot water. Two full capacity tanks are needed to supply this continuous service.

Information about Galvanized Storage Tanks Supplied on Request

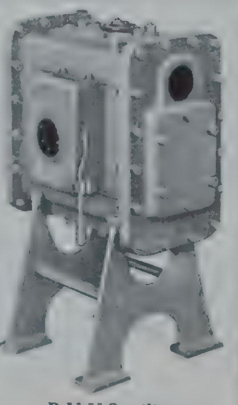
L·O·KOVEN & BRO·Inc.154·Ogden Ave. JERSEY·CITY·N·J

Designing Swimming Pools for Swimming

THE architect can specify real "swimming" water for the pools that he designs by including R-U-V, ultra violet ray, Sterilizers in the recirculating systems. This water will be positively pure and will be free from biting germicidal solutions. It will make swimming a real pleasure.

The powerful ultra violet rays, produced by the quartz mercury vapor lamp, of the R-U-V Sterilizers will seek out and destroy each harmful germ in each drop of water circulated through them. In addition, the rays will set up a residual germicidal action that helps to keep the water in the pool purer than that specified by the U. S. standards as pure drinking water. There is no chance for the spread of infection and disease. The health of every pool user is positively protected.

These positive safeguards are assured with no loss in the refreshing qualities of the water. R-U-V Sterilizers add no biting chemical solutions to it. They can in no way change its original composition or refreshing "feel." It is a pleasure to swim in such water—free from the danger of infection and disease and free from the unpleasantness of biting germicidals. That's the kind of water that makes swimming pools fit for swimming. Read the guarantee in our Booklet F-12.



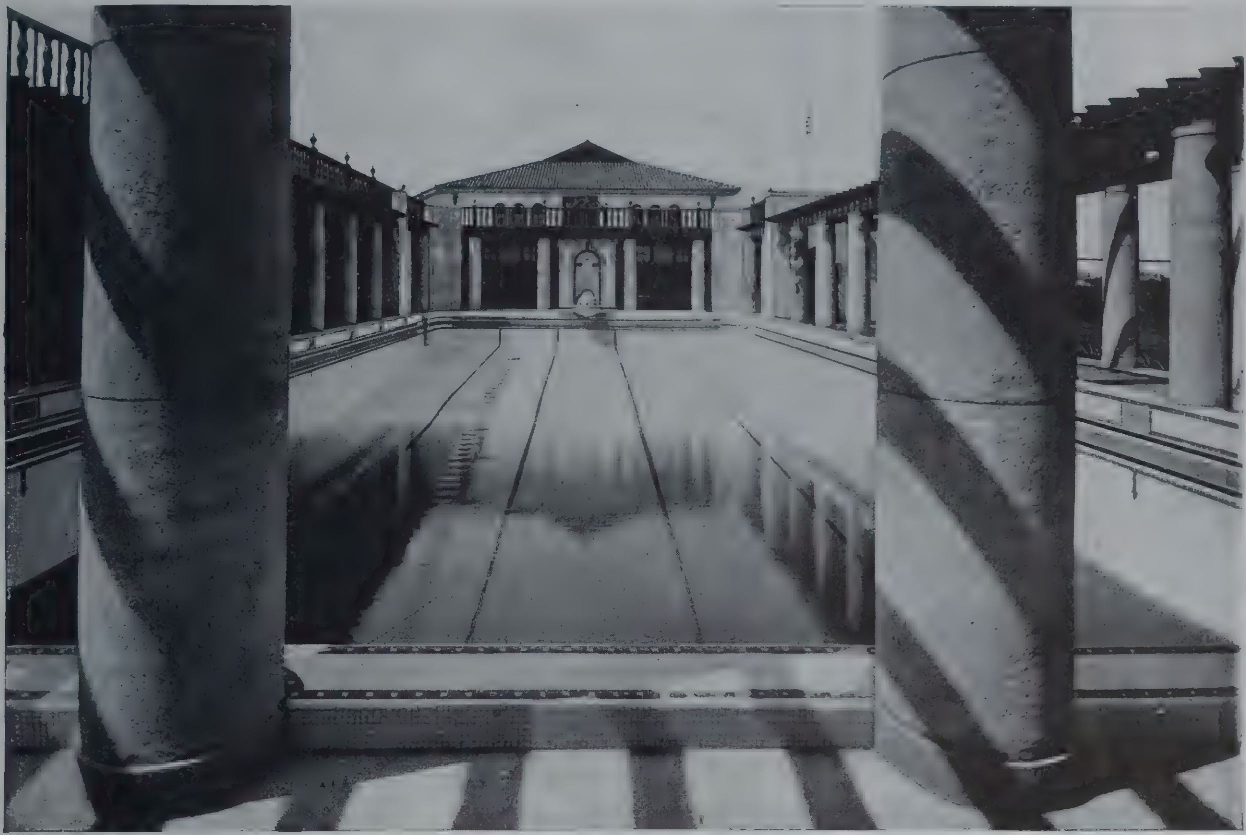
R-U-V Sterilizer
Type M-A-2

The R. U. V. Co., Inc.
383 Madison Ave.
New York City

James B. Clow & Sons
534-546 S. Franklin St.
Chicago, Ill.

R-U-V

Ultra Violet Ray Water Sterilization



Swimming Pool at · AMERICAN COUNTRY CLUB · Shanghai, China

"SWIM IN DRINKING WATER"

"SWIMMING pool water",—says the Surgeon General of the U. S. Army,—"is essentially drinking water and must be measured by drinking water standards".

The drinking water standards of the U. S. Public Health Service limit the bacteria to 100 per cubic centimeter, and insist that the colon bacillus (the sewage germ) be absent in 100 cubic centimeters.

Each day five billion gallons of DRINKING WATER meet these standards because the water is *CHLORINATED,—sterilized* with W&T EQUIPMENT.

CHLORINATION makes the pool water conform to drinking water standards. It is particularly applicable to Swimming Pool Sanitation because it STERILIZES the water and its action is continuous in every portion of the pool.

W&T EQUIPMENT, reinforced by a country wide organization, is today sterilizing hundreds of swimming pools throughout the world. A staff of experts is maintained to advise on any problem connected with Swimming Pool design, construction, or operation, without expense to the supervising architect.

Inquiries are invited at any of our offices. Technical Publication No. 41 will be sent on request.

"The only safe water is a sterilized water".

WALLACE & TIERNAN
COMPANY, INCORPORATED
NEWARK · NEW JERSEY

NEW YORK CHICAGO KNOXVILLE SAN FRANCISCO MINNEAPOLIS PITTSBURGH DALLAS KANSAS CITY
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1

Ball Gymnasium, Indiana State Normal School at Muncie. Roofed with Federal Interlocking and Flat Tile.
Kibele & Garrard, Architects

for SCHOOLS *and* COLLEGES

EDUCATION itself is typified by the permanent character of the modern structures which house institutions of learning. The outstanding responsibility of every community today is the provision of adequate, attractive and permanent school and university buildings. More and more, architects, builders, boards of education and educators generally have come to give due importance to roofs. The result is that a steadily increasing number of schools and colleges are being roofed with Federal Cement Tile. Why? Because there is no other roof material which will give equal service with no maintenance cost. Federal Cement Tile come to the job ready for installation on any type of flat or pitched roof regardless of weather or temperature conditions. Write for complete details. Federal Cement Tile are made, laid and guaranteed by

FEDERAL CEMENT TILE COMPANY
608 S. Dearborn Street - Chicago

FEDERAL
Cement Tile
"The Roof for Permanence"

AF-12-RTG.

Architects
Hugh Tallant and
J. E. R. Carpenter
New York, N. Y.

HURT BUILDING
Atlanta, Ga.

Contractors
Realty Construction
Company
Flint, Mich.

They are ready to back your clients too

Many a man who today owns a desirable piece of property is prevented from erecting on it a valuable, income-earning building by just one thing—financing. But many a man in just this position has been enabled to go ahead with his project by just one thing — the Miller Plan of Financing.

The Miller Plan brings to your client or prospective client the financial aid of men and women in all parts of the country who are satisfied investors in Miller First Mortgage Bonds. Though they are strangers to your client personally, they are able and willing to aid him because of the fine record of safety, combined with liberal earnings, that Miller Bonds possess.

Whether he contemplates the erection of a hotel, apartment building or office structure, he will do well to consider the advantages of the Miller Plan of Financing.

Periodic disbursements are made as the building is constructed. Building is sufficiently financed at the outset. This financing is secured by a first mortgage on land and building, extending over a long period of time. Convenient payments, out of income from the completed structure, take care of interest and reduce amount of indebtedness. Financing less expensive. No shopping for money. Best type building is produced. Architect's ideas are carried out.

By the simple operation of the Miller Plan, the owner is relieved of the worrisome details of the ordinary loan.

From $250,000 *to* $1,000,000 *and more*

We are ready to place at the disposal of owners any amount from $250,000 up, which will be secured by a first mortgage on land, building and equipment.

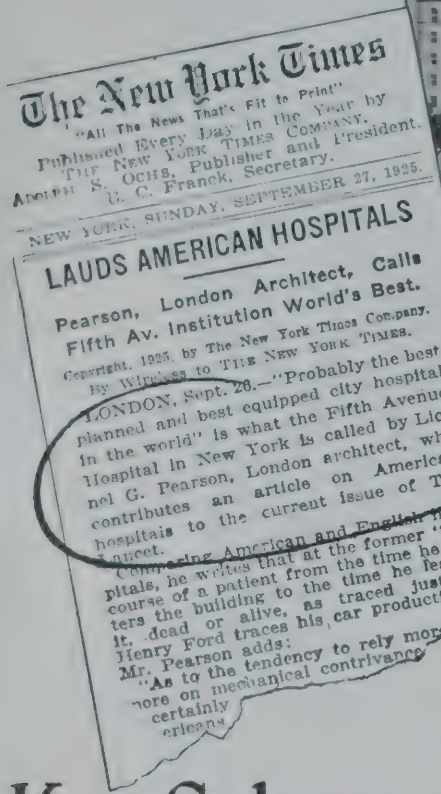
Find out more about how this Miller Plan of Financing operates. Read enthusiastic letters from owners and builders for whom we have negotiated first mortgage bond issues. *Write for Booklet* L-302.

G. L. MILLER & CO.

INCORPORATED

Northern Headquarters—30 East 42nd Street, New York City
Southern Headquarters—Hurt Building, Atlanta, Ga.

This is what an eminent English Architect says of the Fifth Avenue Hospital, New York City:



The New York Times

"All The News That's Fit to Print"

Published Every Day in the Year by
THE NEW YORK TIMES COMPANY.
ADOLPH S. OCHS, Publisher and President.
B. C. Franck, Secretary.

NEW YORK, SUNDAY, SEPTEMBER 27, 1925.

LAUDS AMERICAN HOSPITALS

Pearson, London Architect, Calls Fifth Av. Institution World's Best.

Copyright, 1925, by The New York Times Company.
By Wireless to THE NEW YORK TIMES.

LONDON, Sept. 26.—"Probably the best planned and best equipped city hospital in the world" is what the Fifth Avenue Hospital in New York is called by Lionel G. Pearson, London architect, who contributes an article on American hospitals to the current issue of The Lancet.

Comparing American and English hospitals, he writes that at the former "the course of a patient from the time he enters the building to the time he leaves it, dead or alive, as traced just as Henry Ford traces his car production."

Mr. Pearson adds:

"As to the tendency to rely more on mechanical contrivance certainly ericans

All surgical equipment in the FIFTH AVENUE HOSPITAL *was supplied by the* KNY-SCHEERER CORPORATION. . . .

Make use of the Kny-Scheerer Contract Department

Write for Booklet # C-100

Showing K.-S. combination Water and Instrument Sterilizer with recessed cabinets, Fifth Avenue Hospital

Showing Operating Room, Fifth Avenue Hospital

Showing K.-S. Dressing Sterilizers, Fifth Avenue Hospital

The KNY-SCHEERER Corp.
OF AMERICA

119-125 Seventh Avenue (Dept. 101) New York, N.Y.

Include This Service In Your Building Plans For Schools and Colleges

The value of motion pictures to greater progress of students has been conclusively demonstrated in hundreds of educational institutions.

Adequate provision for motion picture and stereopticon service should be incorporated in all alteration or new building plans for schools and colleges.

The manufacturers of the Simplex Projector, the machine universally recognized as one of the finest in the world, extend to architects and builders a free service in projection room designing that saves time and effort and eliminates all possibility of error.

A number of Blue Prints of Projection booths suitable for schools and colleges have been prepared by Simplex engineers who have had years of experience in projection work and whose expert service is sought by many of the largest theatres in the country.

Requests for Simplex Blue Prints entail no obligation as this service is provided entirely in the interest of good projection.

Mail the attached coupon or write the

PRECISION MACHINE COMPANY, Inc.
317 East 34th Street New York City

COUPON

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317 East 34th Street, New York City

Please send me your free set of Projection Room Blue Prints.

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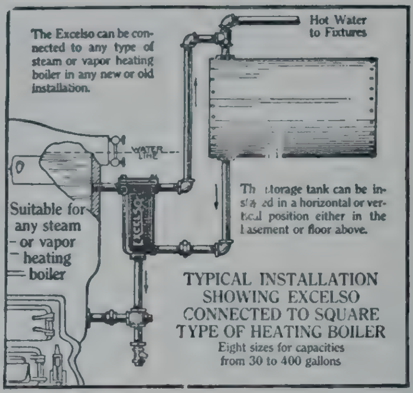
ABUNDANT HOT WATER SUPPLY

From the Heating Plant

THE Excelso Indirect Heater has introduced a new measure of comfort and economy in over 300,000 homes.

Specify its installation and let the steam or vapor heating plant supply hot water needs.

Descriptive literature gladly furnished.



The Excelso can be connected to any type of steam or vapor heating boiler in any new or old installation.
Hot Water to Fixtures
WATER LINE
Suitable for any steam or vapor heating boiler
The storage tank can be installed in a horizontal or vertical position either in the basement or floor above.
EXCELSO

TYPICAL INSTALLATION SHOWING EXCELSO CONNECTED TO SQUARE TYPE OF HEATING BOILER
Eight sizes for capacities from 30 to 400 gallons

EXCELSO SPECIALTY WORKS, Inc.
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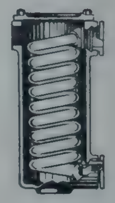

Capacities from 30 to 800 gallons

Single Coil

EXCELSO WATER HEATERS

Nationally Distributed by Leading Jobbers and Boiler and Radiator Manufacturers

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LABORATORY FURNITURE

Free from Warping After Years of Service

LABORATORY Furniture receives hard usage, unavoidably. That's why just the right kind of lumber, properly seasoned and prepared, is absolutely essential in the manufacture of good laboratory furniture.

It is customary to receive such reports of Kewaunee, years after installation, as the following letter from the American Rolling Mill Co., Middletown, Ohio:

> *"We are very well satisfied with the results which we have obtained from the use of this furniture, as we find it all that you claimed for it. The tables are flat and free from warping as when installed."*

The latest edition of the Kewaunee Book of Laboratory Furniture is now ready for distribution.

Address All Inquiries to the Factory at Kewaunee

Kewaunee Mfg. Co.
LABORATORY FURNITURE EXPERTS

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Standard Professional Motion Picture Machines

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YALE UNIVERSITY
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And thousands of Schools, Colleges, Churches and Public Institutions throughout the world.

We are always pleased to supply information to architects regarding the planning and equipping of projection rooms.

NICHOLAS POWER COMPANY
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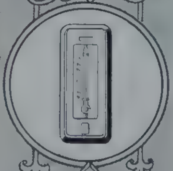
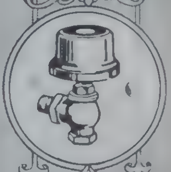
NINETY GOLD ST. NEW YORK, N.Y.





The Johnson System of Temperature and Humidity Control is brought up fully to heat regulation demands in design and construction. That is why it comes up fully to requirements in service and results. Where complete knowledge of Johnson perfections and Johnson performances exists no building is erected without it. Where such complete knowledge does not exist it should be definitely acquired. The consequences are too serious to be disregarded.

Every Johnson Installation Is Made By Johnson Engineers And Mechanics Only, And Not Let To Outside Or Local Attention: Which Makes Additionally Certain of Successful Operation.

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AUTOMATIC TEMPERATURE REGULATION SINCE 1885
JOHNSON OWNED BRANCHES IN 28 PRINCIPAL CITIES, UNITED STATES AND CANADA

JOHNSON

SYSTEM OF TEMPERATURE AND HUMIDITY CONTROL

Chicago Pumps

BELL BUILDING
M. J. Corboy Co.
Plumbing Contractors
K. M. Vitzthum
Architect

AMONG the buildings of outstanding beauty today, there are few whose service equipment and engineering accomplishment do not deserve equal admiration.

The rapidly growing list of successful "Chicago" Pump installations in buildings of this character has a truly notable addition in the Bell Building, Chicago. Located at the intersection of the New Wacker Drive and Michigan Boulevard, The Bell Building is a magnificent structure, pleasing to the eye and a source of pride to Chicagoans.

Down deep below the ground, far from the eye of the admiring crowds, a duplex set of Chicago Bilge Pumps keep the lower parts free from seepage.

Chicago Pump Company

Manufacturers of quality centrifugal pumps for every service

Condensation—Vacuum—Sump—Sewage—House—Circulating

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PUMPS

A type for every service

Bulletins on request

THE GOULDS MANUFACTURING CO.
SENECA FALLS, N. Y.
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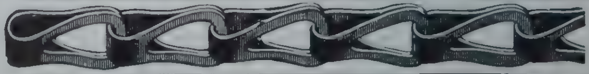
GOULDS

SASH CHAINS



Sterling Memorial Chemical Laboratory
Yale College, New Haven, Conn.

Many of the college buildings of the country are equipped with Smith & Egge Sash Chains

THE SMITH & EGGE MFG. CO.
Bridgeport, Conn.
ORIGINATORS OF SASH CHAINS

HORN-WATER-PROOFINGS

Wouldn't You Say These Architects Are Right?

There was nothing in the immediate or surrounding conditions to demand the waterproofing of the foundation walls in the McCutcheon Building. But, the architects as a positive preventative against any possible future conditions, insisted that all foundation cement and mortar be integrally water proofed with Hydratite.

Water mains can break—unforeseen water happenings can happen, and the below ground space in the building will be unaffected.

Hydratite to these architects emerges from a mere waterproofing and takes the form of an indispensable all-time-insurance.

The McCutcheon Building at
Fifth Avenue and 49th Street,
New York
Cross & Cross, Architects
Starrett & Van Vleck, Associate Architects

Dehydratines

No. 1—Replaces furring, or used in conjunction with it—to damp-proof the interior surface of exposed brick or terra cotta walls—before plastering.

No. 2—A transparent damp-proof coating for the exterior of stone, brick—concrete walls. Preserves the surface and prevents discolorations.

No. 10 Damp-proofs exposed walls, with a heavy troweled coating on the inside face. Replaces furring. The most positive method of damp-proofing.

No. 80—A liquid compound to lubricate, hasten the hardening and permanently strengthen cement, mortar and concrete mixtures.

Hydratite

Water-proofs concrete and cement mortar integrally and permanently. Used in mortar joints—stucco-foundations and floors.

Vulcatex

A water proofing plastic compound for caulking and pointing.

A. C. Horn Company, LONG ISLAND CITY, N. Y.

59 Horn Building

The Logical Choice *for* College Buildings

THE need for higher education will remain as long as civilization itself. The quest for greater knowledge is constantly on the increase. No longer is it necessary to "sell" education—it is now simply a question of accommodation. This means an increasing number of larger and better equipped school and college buildings.

A tendency towards improvement in design and a more substantial character of structure has already set in and in recent years much progress has been made. That these improvements and still greater investments may be safeguarded—the architects and engineers responsible have been careful to select building materials of substantial character—materials that have proved their worth and that will meet the increased demands of the future.

It may be significant to those interested in this type of structure that in a very large number of America's finest school and college buildings "NATIONAL" Pipe is used. See Bulletin No. 25—free on request.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.
GENERAL SALES OFFICES: FRICK BUILDING
DISTRICT SALES OFFICES
Atlanta Boston Chicago Denver Detroit New Orleans New York Salt Lake City Philadelphia Pittsburgh St. Louis St. Paul
Pacific Coast Representatives: U. S. Steel Products Co. San Francisco Los Angeles Portland Seattle
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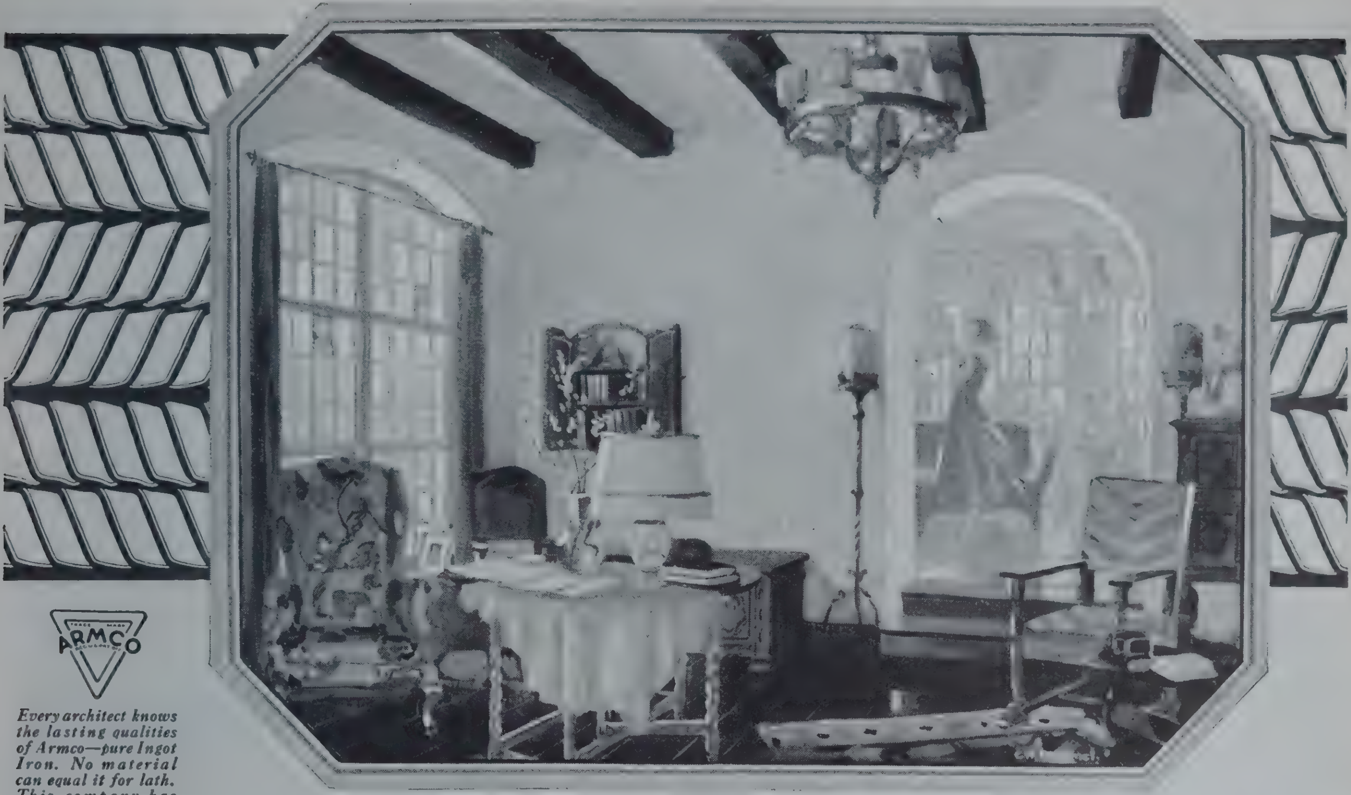

ARMCO

Every architect knows the lasting qualities of Armco—pure Ingot Iron. No material can equal it for lath. This company has the exclusive right to its use in metal lath.

They know the difference that Herringbone makes

THERE was a time when home owners and home buyers considered plaster cracks as unavoidable evils. But that was before they had been told about metal lath, especially Herringbone Metal Lath.

Now they know that walls needn't crack in years! They know that ugly lath streaks, checks and cracked plaster mean that the house is not built as well as it might be. They know that if Herringbone were back of the plaster, the walls would be *permanently* free from such disfiguration.

You'll find that home builders are more than willing to pay the slight difference in first cost of Herringbone. They realize that the saving in erection cost and the elimination of future repair bills, alone, makes the use of Herringbone a real economy. And because Herringbone is the only lath made of the famous Armco Ingot Iron, it is good for a life-time.

As a guarantee of lasting wall beauty, the use of Herringbone is unsurpassed. The plaster works through and around the mesh, and clinches in behind it with a grip that no amount of shrinkage can loosen. The mesh becomes completely embedded in the plaster slab and reinforces every inch of it perfectly. You can always be proud of a Herringbone wall or stucco exterior.

There are innumerable applications of Herringbone, both exterior and interior. Our hand book—"Herringbone Rigid Metal Lath"—gives these in detail. You should have a copy in your files. We'll gladly send it, without charge, on request.

Other GF Materials:

- *Self-Sentering*—A combined form, lath and reinforcement for concrete floors and roofs.
- *Trussit*—A reinforcement for solid partitions.
- *GF Expanded Metal*—A concrete reinforcement.
- *GF Steel Tile*—For concrete floors.
- *GF Steel Lumber*—Used in place of wood joists and studs.
- *GF Steel Channels*—For fireproof partitions and ceilings.
- *GF Peds*—Spot grounds for attaching trim to concrete and plaster.
- *GF Duplex Steel Bridging*—For wood joist floors.
- *GF Steel Sash.*
- *GF Steel Basement and Casement windows.*
- *GF Lintels.*
- *GF Industrial Steel Doors.*
- *GF Wire Mesh.*
- *GF Waterproofings*—For concrete and masonry.

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Member National Council for Better Plastering

BETTER PLASTERING
METAL LATH TO REINFORCE AND PRESERVE

GF Herringbone Doublemesh Lath

Threading
"Central Black" and "Central White" Conduit

There is the same care and accuracy in threading "Central" Conduit as in every operation in the "Central" plant.

ARCHITECTS, aware of the importance of accurate, clean-cut conduit threads, will find interesting the "Central" threading process here illustrated and described.

AFTER being cut into 10-foot lengths, as illustrated at the right, a large lift of plain end pipe in conduit lengths is placed on the rack, shown at the right of the above picture. The operator in the rear takes a length and threads one end. He then passes it to the operator in the foreground who threads the other end and passes the length to the rack shown at the right of the picture.

Great care is exercised in the threading of "Central" Conduit. All machines are kept in perfect condition, and chasers are changed and sharpened at regular intervals, to insure clean. smooth threads.

Before "Central" Conduit is threaded the pipe is machine cut into 10-foot lengths.

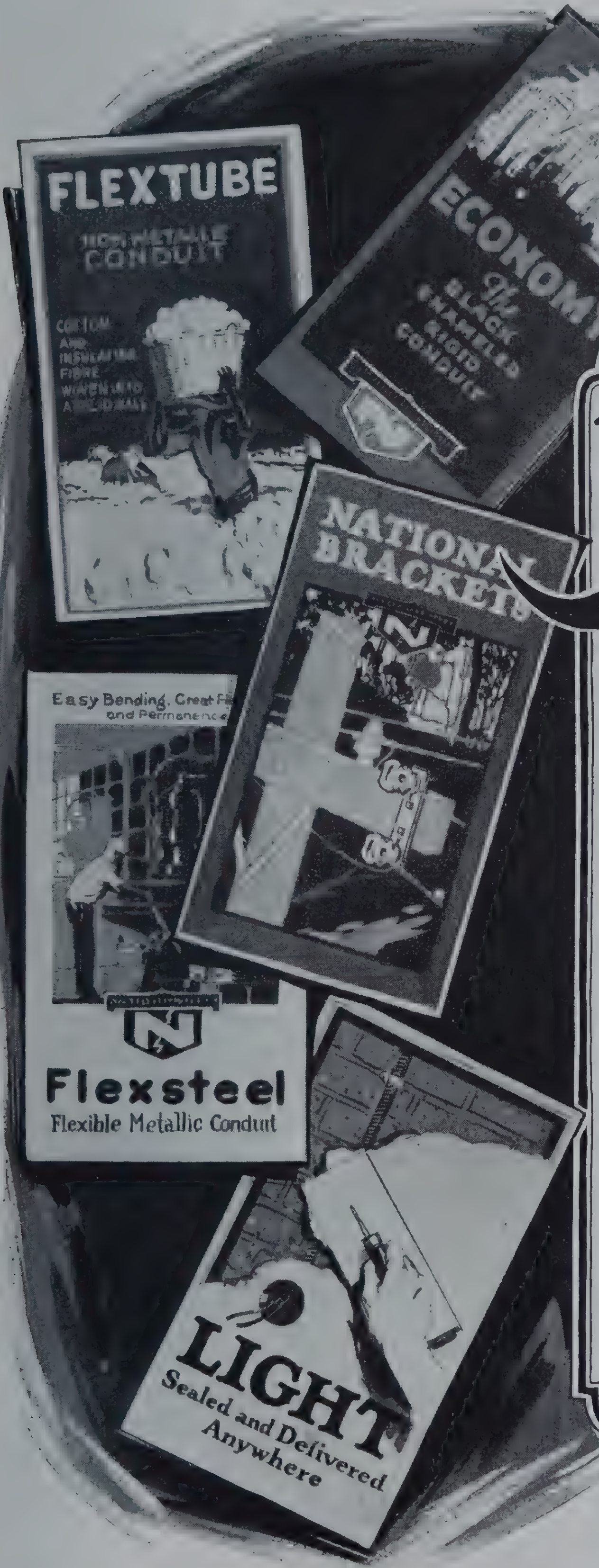
Standard gages are used continually to insure correct thread sizes.

The length of the thread is controlled in the machine and is watched carefully, so that all threads are of the same length on the respective sizes.

All pipe is reamed during the threading operation which removes the fin or projection caused by the cutting.

CENTRAL TUBE COMPANY

GENERAL OFFICES ~ FIRST NATIONAL BANK BUILDING
PITTSBURGH
DISTRIBUTORS IN ALL LARGE CITIES


FLEXTUBE
NON-METALLIC CONDUIT
ECONOMY
The Black Enameled Rigid Conduit
NATIONAL BRACKETS
Easy Bending, Great Flexibility and Permanence
Flexsteel
Flexible Metallic Conduit
LIGHT
Sealed and Delivered Anywhere

5 FREE booklets

MAKING Conduits, Cables, and Fittings, for safe, permanent and trouble-free electrical wiring is the sole business of the National Metal Molding Company. Five of the products are fully and completely described in these booklets. Send for them.

ECONOMY	Black Enameled Rigid Conduit, protected by double-dipped, acid-resisting coating of enamel—baked on.
FLEXTUBE	Non-metallic, solid-wall Conduit. Never kinks! Bend it, jerk it, twist it, easily works back into shape again. The soap-stoned interior makes fishing easy.
FLEXSTEEL	Flexible Metallic Conduit, pliant as a rope of woven steel! Designed to withstand weather and moisture. Of great flexibility and permanence. Full line of sizes.
OVALFLEX	A Flat Armored Cable only 5/16" thick. Bends edgewise and flatwise. Lay it on brick, tile or concrete without cutting or chipping and plaster right over it.
NATIONAL BRACKETS	Designed so that wires can be attached or threaded and built to withstand excessive strain.

National Metal Molding Company
1420 FULTON BUILDING
PITTSBURGH, PA.
Represented in All Principal Cities (x46

National Metal Molding Company

The New
MASONIC TEMPLE

Nearing Completion at
St. Louis, Mo.

Associated Architects
Eames & Young
Albert B. Groves

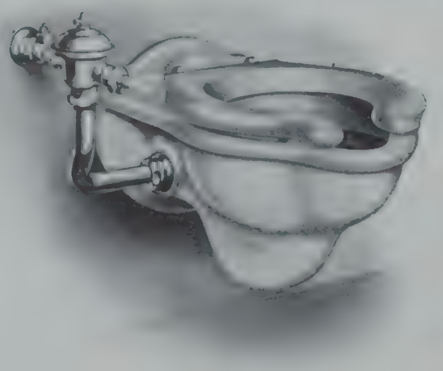
General Contractors
Westlake Construction Co.

Plumbing Contractors, J. M. Wheeler & Co.

EQUIPPED THROUGHOUT WITH THE

Watrous

Duojet Wall Closet and Flush Valve



THE recognized sanitary advantages of the wall-hung closet are supplemented by other important advantages in the Watrous Duojet Wall Bowl. It has solved the problem of *first cost,* and has also removed all chance of clogging and overflowing.

A glance at the illustration on the left shows how the Watrous Duojet Wall Closet facilitates the work of keeping the toilet room floor clean and sanitary. It also promotes economy in constructing new buildings, as it is not necessary to leave provision in the floor for closet connections; a "furred" ceiling is avoided, and installation is made without complicated fittings.

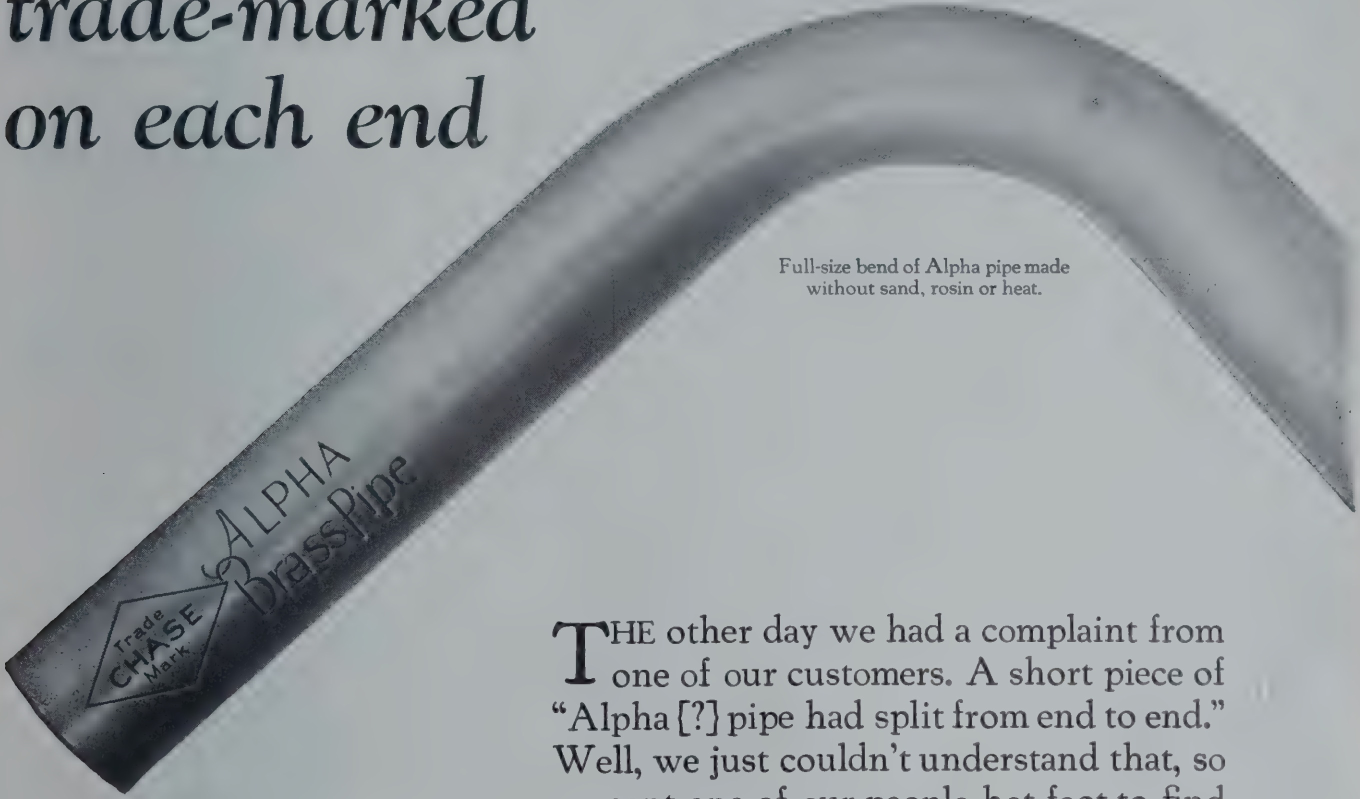
Also, the Watrous Duojet type eliminates the narrow outlet needed beyond the trap in other types of wall closet. The Watrous design therefore prevents clogging, overflowing and heavy repair bills. The Watrous Flush Valve delivers the exact quantity of water required for a thorough flush and refill, and effects a heavy saving in annual water bills.

For full details on the Watrous Flush Valve and Duojet Bowl, write for Booklet CC

PLUMBING DIVISION
Watrous Flush Valves — Duojet Closets — Self-Closing Basin Cocks — Combination Lavatory Fixtures — Pop-Up Wastes — Drinking Fountains — Liquid Soap Fixtures — etc.

THE IMPERIAL BRASS MANUFACTURING COMPANY
1238 West Harrison Street (*Established 1885*) CHICAGO

Every length is trade-marked on each end



Full-size bend of Alpha pipe made without sand, rosin or heat.

THE other day we had a complaint from one of our customers. A short piece of "Alpha [?] pipe had split from end to end." Well, we just couldn't understand that, so we sent one of our people hot-foot to find out. To make a long story short, we proved that it wasn't Alpha pipe and the plumber remembered that he had used that one piece of pipe of unknown make which was picked up in his shop. He thought it was all right. Now, he knows the difference.

We had been marking our pipe on one end only—now we mark it four feet from each end so that even short pieces will carry our guarantee.

Alpha pipe is better and our little book on Alpha brass tells why. May we send you a copy?

ALPHA Brass Pipe

contains only Alpha crystals which make a dense, ductile and tough brass that offers greater resistance to corrosive waters. Because it contains more copper and lead it makes better bends and cuts and threads easier.

Trade
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CHASE COMPANIES, INCORPORATED, *Waterbury, Conn.*
Please send me free of charge a copy of your book on Alpha Brass. AF-0320-10

Name

Position

Firm

Address

Vitreous China Urinal Stalls

for

Murray Hill Building
New York City

ROUSE AND GOLDSTONE, Architects, N. Y.
JARCHO BROS., INC., Plumbing Contractors, N. Y.

THE · BEST · IS · CHEAPEST
DOUGLAS
TRADE MARK
INCRESCENT

Although Vitreous China Urinal Stalls have been manufactured only a short time, they have been accepted and specified in every state.

The reason for the immediate recognition of this new piece is the unqualified opinion that Vitreous China is the most sanitary material from which plumbing fixtures can be made.

Vitreous China Water Closets and Lavatories have long been considered a standard requirement of all good building.

Douglas Vitreous China Urinal Stalls are made of the same vitreous body as their water closets and lavatories—and are full sized.

Dimensions—Height 43 inches over all, from finished floor to top of Urinal 39 inches, width 18 inches full.

Guaranteed not to craze, stain or discolor. It is non-porous, so it will not absorb odors. Has a gleaming white surface, which is easily cleaned. Assuring a fixture of quality.

Upon request we will send descriptive literature and names of buildings in your vicinity where Douglas Vitreous China Urinal Stalls are being used.

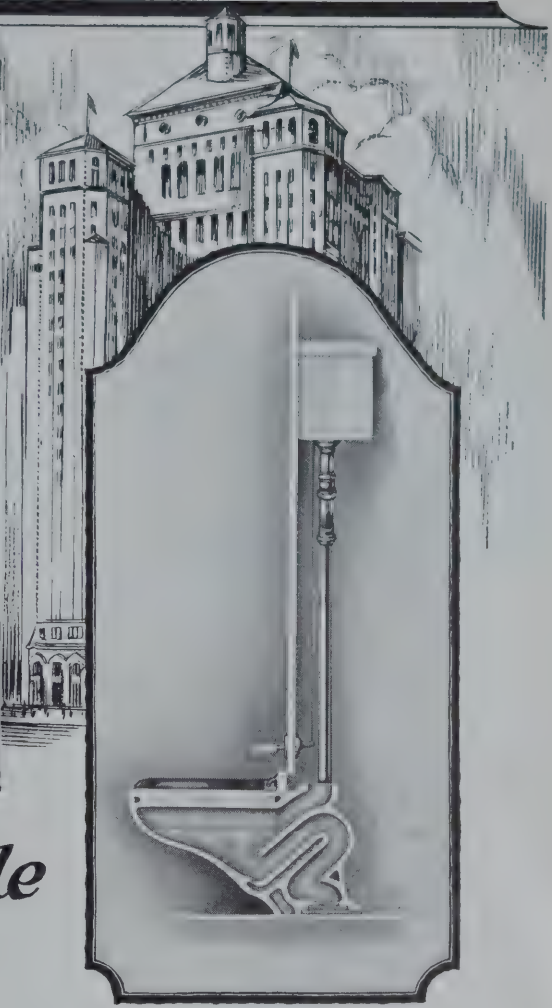
Manufactured by

The John Douglas Co.

Makers of High-Grade Plumbing Fixtures

General Office
Cincinnati, Ohio

Factories
Cincinnati, Ohio
Trenton, N. J.



Do Your Plans Include a Pipe Chamber?

IN ALL classes of building where a pipe chamber is possible *"Universal"* Wall Closet as developed by "Te-pe-co" will be found ultimately economical.

Note in the above illustrations that the *"Universal"* has all the desirable features of the wall-hung closet plus a simplified installation that requires no carrier.

This highly sanitary fixture is of the syphon jet construction in a design that includes the extended lip feature, and a large vent passage from the bowl opening vertically into the pipe chamber.

The *"Universal"* is connected to the floor by the Donovan Safety Flange, insuring both the safest support without strain on the wall and a perfect seal at the joint.

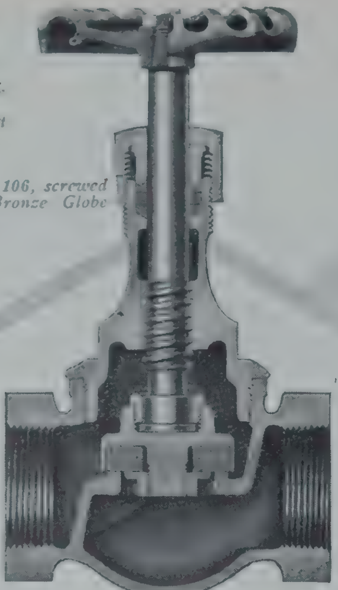
If your plans require a closet of this type, you will gain much by consulting your jobber on the *"Universal."* Like all other "Te-pe-co" products the tank and bowl are of two-fire Vitreous China.

The
TRENTON POTTERIES COMPANY
TRENTON, N. J., U. S. A.
BOSTON SAN FRANCISCO NEW YORK

TE-PE-CO

ALL-CLAY PLUMBING FIXTURES

Harkness Memorial, Yale University, New Haven, Conn. James Gamble Rogers, Architect



Sectional view, Fig. 106, screwed Jenkins Standard Bronze Globe Valve

Webster Hall, Dartmouth College, Hanover, N. H. Larson and Wells, Architects

Henry and Foulke Dormitory, Princeton University, Princeton, N. J.; Zantzinger, Borie and Medary, Architects

They earn the degree of M. E.

M. E. means Maintenance Economy. Many colleges and universities confer this degree on Jenkins Valves.

These valves contribute much to the economical maintenance of a power plant and of plumbing, heating and fire protection systems. The reasons are:

(1) There is a complete line of Jenkins Valves of bronze and iron in standard, medium and extra heavy patterns—a line which insures the right valve for each service.

(2) Each genuine Jenkins Valve is designed for the maximum service, not merely the average. There is a reserve margin which promotes trouble-free performance.

(3) Each is thoroughly standardized in manufacture, and parts are interchangeable. This means a veteran Jenkins Valve can always be supplied with a replacement part that fits.

(4) The valves are simple of operation. They require neither close attention nor frequent adjustment to keep them in working order.

(5) Jenkins Valves are obtainable at supply houses everywhere. Their distribution is nation-wide, the source of supply is handy in every community.

Not alone for institutions of learning, but for buildings of every type, architects and engineers, in promotion maintenance economy, may rely on Jenkins Valves.

Jenkins service is best assured by the specification of genuine Jenkins Valves . . . "always marked with the Diamond."

Architects and engineers interested in university and school construction are invited to write for our book covering the uses for Jenkins Valves.

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Always marked with the "Diamond"

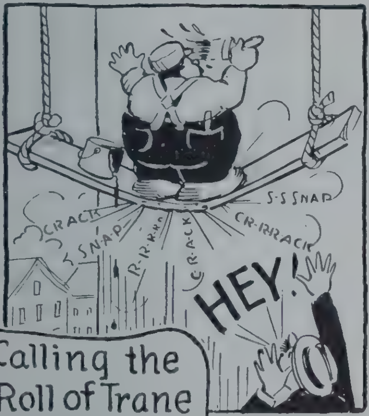
Jenkins Valves

SINCE 1864

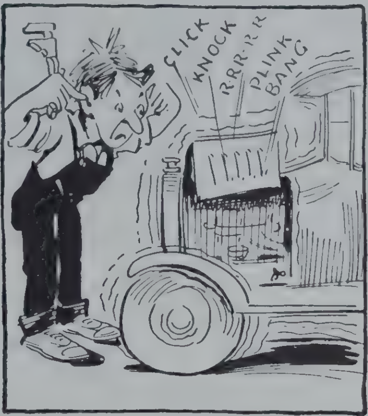
These and many others are Jenkins-equipped

Yale University
Dartmouth College
Princeton University
Cornell University
Columbia University
Syracuse University
University of Pennsylvania
Carnegie Institute of Technology
University of Pittsburgh
University of Texas
West Virginia University
Georgia School of Technology
Smith College
Fordham College
Vassar College
Ohio State University
Lehigh University
Lafayette College
Penn. State College
Vanderbilt University
University of Wisconsin

Signals!



THE OVERLOADED BEAM GROANS!



THE LOOSE BEARING RATTLES!

THE SICK BABY BAWLS!

Calling the Roll of Trane Bellows Trap Users

WATKINS DEVELOPMENT Central Heating Pittsburg, Pa.	2500
FORD MOTOR CO. DETROIT 50-75 lbs. press.	1000
SHERMAN SQ. APTS. New York, N.Y.	684
DETROIT EDISON COMPANY Detroit (superheated steam)	582
WILLETTS APARTMENTS New York, N.Y.	530
ST. ELIZABETH HOSPITAL Dayton, Ohio	383
MILLER & SONS, LTD. Concord, Can.	300
MEDICAL ARTS BUILDING N'p't News, Va.	281
YELLOWSTONE PARK TRANSPORTATION CO. Gardiner, Mont.	251
SCHAFFER APARTMENTS Atlantic City	238
CHINA UNITED ASSURANCE BUILDING Shanghai, China	232
COMMERCIAL NATIONAL BANK Raleigh, N. C.	222
NEW BARNETT HOTEL Canton, Ohio	200
FORD MOTOR COMPANY Iron Mountain, Mich.	200

(continued)

and

Here's a TRAP that tells you how it feels

How do the Ford Motor Company, Detroit Edison Company, Watkins Realty Company, and all other Trane Bellows Radiator Trap users actually ***KNOW*** their traps are functioning properly.?

They know because Trane traps are SIGNAL traps. If a Trane trap wasn't doing what it is designed to do it would SIGNAL.

And when a Trane trap started to SIGNAL there wouldn't be any question about how it was feeling. Users would notice that, for some reason or other, the radiator to which the trap was attached ***wasn't giving off as much heat as the other radiators.*** It would be more like a hot water system radiator than a vapor or vacuum system radiator.

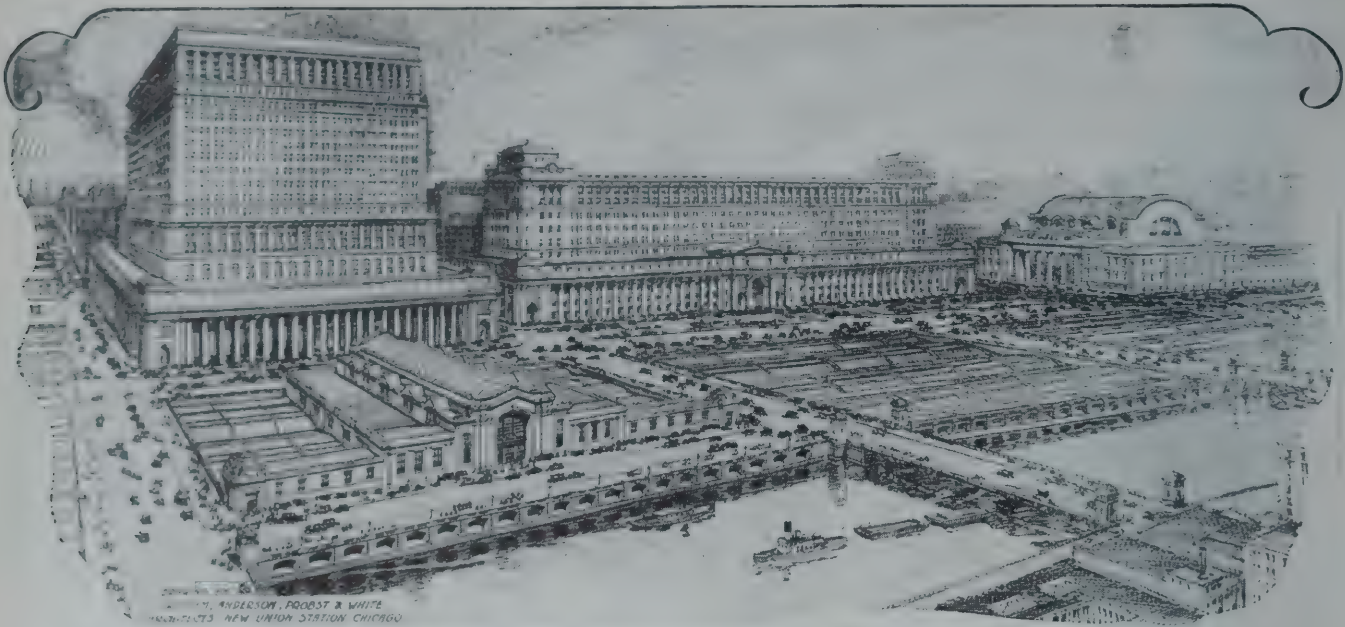
That's all there is to the SIGNAL. But that is all you want; it's all you ***need.*** A low temperature radiator is ***mighty easy to find.***

You will probably never see these Signal Traps SIGNAL. Trane traps are built so they won't be called upon to Signal. But the feature is built into them nevertheless. Call it the "Teeth in the Trane Five-Year Guarantee" if you wish. Anyhow, remember that Trane traps are designed so you ***know*** they are right.

Complete details will gladly be sent on request

HEATING TRANE PRODUCTS PUMPING

THE TRANE COMPANY, 220 Cameron Ave., La Crosse, Wis. Manufacturers of vapor and vacuum heating specialties and pumps Branches and sales connections at New York, Chicago, Boston, Philadelphia, Buffalo, Cleveland, Detroit, Seattle, Los Angeles, Albany, Minneapolis, Salt Lake City, Ft. Wayne, Portland, Oregon, Greensboro, N. C., Zanesville, Ohio, Atlanta, Ga., Baltimore, Md. In England: 22 23 Clerkenwell Close, London, E. C. 1. In Canada: The Trane Co., 23 River St., Toronto; Thomas Robertson & Co., 134 Craig St., West, Montreal; F. S. Murdock, 310 Breadalbane, Winnipeg. In Japan: The Uchida Trading Co., Ltd., Tokio—Osaka—Kobe. In China: C. J. Doughty & Co., 7 Jinkee Road, Shanghai.


ANDERSON, PROBST & WHITE
ARCHITECTS NEW UNION STATION CHICAGO

NEW UNION STATION, CHICAGO

Equipped exclusively with "EVERNU"

50,000 people, going to and from 300 trains, pass through Chicago's new $60,000,000 Union Station every day. The building is magnificent in beauty and utility, the equipment throughout the finest.

Architects and engineers realized that the toilet seats in the building had to be the ultimate in fine appearance and durability. Therefore they specified "Evernu" Hard Rubber Toilet Seats. They knew that the Evernu construction, although everlasting, never shows its age; that there is no finish to wear off and that the beauty of the seat is as deep and enduring as the hard rubber itself; that there would be no repairs or replacements; that the upkeep cost would be negligible.

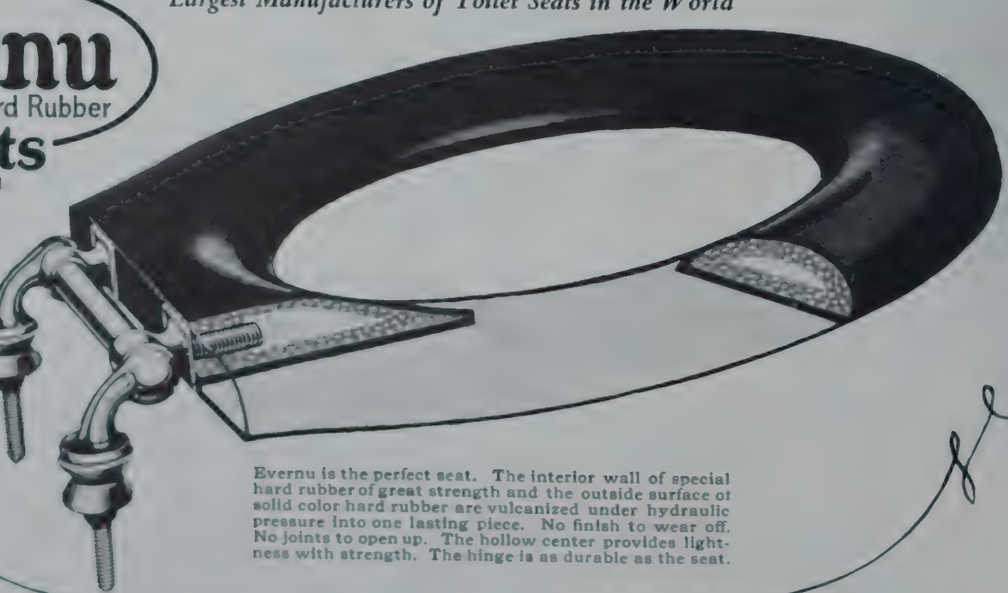
This is the seat you should specify for your clients to insure lasting fine appearance and economy.

There is an Evernu model for every type bowl and architects are privileged to specify the hinge metal. Complete specifications will be found in Sweet's catalog.

NEVER SPLIT SEAT COMPANY
Dept. 1212, Evansville, Indiana, U. S. A.
Founded 1905

Largest Manufacturers of Toilet Seats in the World

Evernu
Everlasting Hard Rubber
Seats
Patented



Evernu is the perfect seat. The interior wall of special hard rubber of great strength and the outside surface of solid color hard rubber are vulcanized under hydraulic pressure into one lasting piece. No finish to wear off. No joints to open up. The hollow center provides lightness with strength. The hinge is as durable as the seat.

Residence of Fletcher Cowherd, Jr., 6140 Morningside Drive, Kansas City, Mo.; Selby H. Kurfiss, Architect, Kansas City; Kohler Plumbing Fixtures furnished by U. S. Water & Steam Supply Co., Jobbers, Kansas City; installed by C. W. Herold Plumbing & Heating Co., Plumbers, Kansas City

THE Fletcher Cowherd Co., Kansas City, Mo., builds fine homes, equipping them, almost always, with Kohler Plumbing Fixtures.

In building for himself, the vice-president of this company, Fletcher Cowherd, Jr., made the same selection. His home on Morningside Drive has Kohler Ware in its five bathrooms and in its kitchen.

This beautiful ware has a special distinction, conferred by grace and dignity of design and by rare quality of enamel—always identified by the name "Kohler" faintly fused in the immaculately white surface. Yet it costs no more than any comparable ware.

It is a sound choice, this Kohler Ware, alike for the man who builds to keep and for him who builds to sell. There is genuine satisfaction in specifying it.

A Notable Community

The modern conception of the "city plan" is shaping the growth—in orderly beauty and civic purpose—of Kohler Village, where Kohler plumbing fixtures and private electric plants are made

KOHLER CO., *Founded* 1873, KOHLER, WIS.
Shipping Point, Sheboygan, Wis. · *Branches in Principal Cities*

KOHLER OF KOHLER
Plumbing Fixtures

He knows that it will work

H2370, a Combination of H952½ Mixometer Shower and Deshler Bath Fixture H2460

The one thing that every one says about Speakman Showers is that they ALWAYS work.

This is due possibly to the fact that Speakman Showers are made by a company which has had more than 56 years' experience in the plumbing industry and has always turned out a quality product.

We offer this experience to architects in any individual problem which they might meet and where they feel that we can help.

Loose-leaf catalog showing the entire Speakman line of showers and fixtures is available for your files, size 8½ x 10⅝".

SPEAKMAN COMPANY
WILMINGTON, - DELAWARE

SPEAKMAN SHOWERS
and FIXTURES

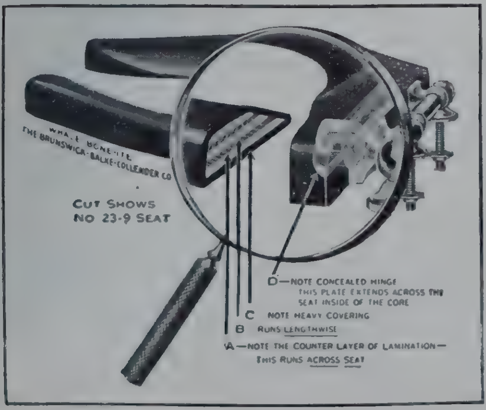
New Hotel Peabody, Memphis, Tenn.
Architect: W. W. Alschlager
Jobber: No. Nelson Mfg. Co.
Plumbers: Hill Plbg. & Htg. Co.
Equipped with 18-59 Ebony, Whale-Bone-Ite

Jung Hotel, New Orleans, La.
Architects: Weiss & Dreyfous, Inc.
Jobbers: Standard Sanitary Mfg. Co.
Plumbers: Sciambra & Masino
Equipped with 23-9 and 21-9 Ebony, Whale-Bone-Ite

The ebony black, or rich mahogany finish of Whale-Bone-Ite seats affords a most pleasing contrast with the tile and trim of the bathroom or lavatory

Racquet Club, Chicago, Ill.
Architect: A. Rebort *Jobbers: Standard Sanitary Mfg. Co.*
Plumbers: J. J. Daly Co. *Equipped with 21-9 Ebony, Whale-Bone-Ite*

3 Big Reasons for specifying Whale-Bone-Ite Toilet Seats


WHALE BONE-ITE
THE BRUNSWICK-BALKE-COLLENDER CO
CUT SHOWS NO 23-9 SEAT
D—NOTE CONCEALED HINGE THIS PLATE EXTENDS ACROSS THE SEAT INSIDE OF THE CORE
C NOTE HEAVY COVERING
B RUNS LENGTHWISE
A—NOTE THE COUNTER LAYER OF LAMINATION—THIS RUNS ACROSS SEAT

"The Seat of No Apologies"

1. Ten Exclusive Features, found in no other seats made:

Permanent Durability
Easiest Cleaned
Acid-Proof
Permanent Finish
No Exposed Metal
Sanitary
Comfortable
Non-Inflammable
Non-Warping
One-Piece Construction

2. The unqualified guarantee of the maker.

3. Their long trouble-less service, which makes them the most economical in long years of service.

WHALE-BONE-ITE DIVISION
The Brunswick-Balke-Collender Co.
623 South Wabash Avenue, Chicago

THE BRUNSWICK-BALKE-COLLENDER CO
WHALE-BONE-ITE
REG. U.S. PAT. OFF. 1918
SEAT

Reviews of Manufacturers' Publications

THE JOHN D. EMACK CO., Philadelphia. "The Charm of Slate Floors and Walks." A brochure on use of slate.

Probably because of its wide use for covering roof surfaces, the advantages of slate as a flooring material are frequently overlooked. Use of this material is productive of beautiful effects when it forms the flagging for verandas, terraces and garden walks, but perhaps even more distinguished is its appearance when it is used for paving interiors which are of a sufficiently simple and bold character, such as vestibules, halls, sun-porches, sometimes even for libraries, and often in shops or elsewhere.

This interesting booklet is devoted to describing and illustrating the slates marketed by this well known firm, —slates rough or finished, in such colors as black, gray, blue, purple, green and red, and of shapes irregular or cut into random rectangles, these last sometimes being finished with trimmed or frequently with chamfered edges.

BIRD & SON, Inc., East Walpole, Mass. "Bird's Roofs." A number of excellent publications on roofs.

In this interesting and helpful folder there is condensed all the information which an architect or builder is likely to require regarding the excellent line of asphalt shingles for which Bird & Sons, Inc. are so well and widely known. These shingles are to be had singly ("Proslate Individuals"), in twos ("American Twins"), or in fours ("American Fours or Proslate Fours"), and in quite a variety of excellent colors which long experience has proved to be useful for roofs. As all builders and most architects know, these shingles may be applied over old roofs of wood shingles, this making unnecessary the often costly removal of a wooden roof. Then too, use of these shingles when two or more are joined means use of fewer nails to hold them in place, the use of "American Twins" involving a saving of 36 per cent and of "American Fours" of 47 per cent.

INDIANA FLOORING CO., New York. "From Forest to Floor." An extremely useful work on floor surfacing.

Of all the materials used for flooring, wood is without doubt the most widely used, the variety of wooden floors being so great that a floor may be laid of the simplest and cheapest of planks, or else it may be inlaid or of "marquetry," and as intricate and costly as the taste may desire.

This carefully prepared and beautifully produced brochure deals with wooden floors of a high order,—floors laid of domestic as well as of imported woods, and in a great variety of patterns. These patterns are for the most part quite simple,—variations of "herringbone" or "basket weave" or different arrangements of small geometrical forms, but owing to the grain or figure of the woods used the effect is rich and beautiful without being either puzzling or confusing, qualities which should be avoided in designing floors. Many notable installations are illustrated.

ARTHUR TODHUNTER, 414 Madison Avenue, New York. "Early English Mantels." A work on their use.

Probably because the fireplace is the architectural center or focus of a room, the design of its mantel or chimneypiece determines its style and establishes its character. This fact is recognized by the firm issuing this brochure, and in view of the present trend toward the use of the different English styles in domestic architecture the booklet is useful for what it suggests and offers. It deals with excellent reproductions of various types of English chimneypieces or mantels, the very early and simple sort, consisting of a beam or "hearthtree" as it was called, practically a decorative lintel of wood or stone resting upon two vertical supports, or else the more fully developed mantel, architectural in form, and with supporting pilasters and sometimes with overmantels as well. These excellent reproductions are of different materials, and they also represent various English periods, from the Gothic to the late Renaissance.

W. M. RITTER LUMBER CO., Columbus, O. "Floor Beauty Depends on Timber Growth." Wood floors.

The importance of the floor and the materials of which it is made has increased considerably since the rise of the present custom of leaving floors uncovered or else of using upon them only a few rugs. Most architects doubtless have their own preferences on flooring for use in different places, but it may be said, broadly, that for domestic structures floors are for the most part of wood,—and probably they always will be. Wood possesses countless advantages, one being its wide range of cost from the most inexpensive to the most luxurious of woods; another advantage lies in the great variety the appearance of wood floors may be given, and another most important point in favor of wood is that it is comparatively comfortable to walk upon even in cold weather, lacking the chill sometimes possessed by other flooring substances. This publication supplies valuable data.

THE SANDUSKY CEMENT CO., Cleveland. "Medusa Waterproofed Portland Cement." A work on waterproofing.

Many of the ways in which concrete is being used necessitate that it possess qualities which render it waterproof. To make concrete which is waterproof and wholly impervious even to dampness, it is essential that suitable materials be mixed in correct proportions, and this booklet or brochure is devoted to making known the excellent qualities of Medusa Waterproofed Portland Cement as an ingredient for concrete and to giving directions for using it in concrete which shall be waterproof. When it is remembered that the success of much large work of many kinds requires that basements, sub-basements, exterior walls and other parts be absolutely proof against dampness, the importance of securing this quality will be quickly realized. This book gives ample data regarding this cement and complete specifications for its proper use in mixing.

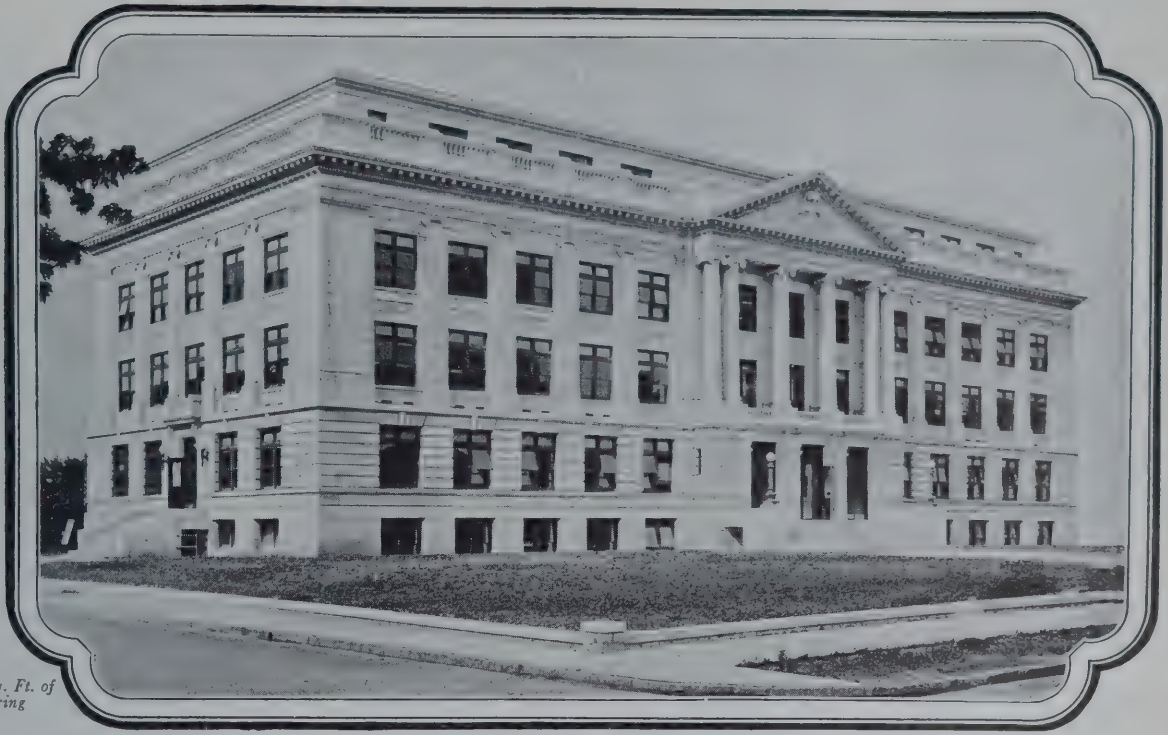
I. P. FRINK, INCORPORATED, New York. "Art and Gallery Lighting." The necessity of proper lighting.

An important department of artificial lighting is that which has to do with art galleries and museums, important in that upon the success with which a gallery is lighted depends the pleasure to be derived from art treasures of great value. This booklet illustrates and describes the methods of gallery lighting practiced by this old and well established firm. The forms of lighting differ considerably, one form involving the placing of lights above a skylight or a glass ceiling, which of course means that the gallery is lighted in much the same way by day and by night, and another form involves the use of either an individual reflector for each painting in a gallery or of one continuous reflector which extends entirely around a room. Still another form is used when exhibition cases in museums or show cases in shops must be so arranged that lighting is concealed.

JOHNSON SERVICE COMPANY, Milwaukee. "Johnson System of Temperature and Humidity Control."

The automatic regulation of temperatures and air conditions, which adds so greatly to a building's serviceability, is the direct result of study and experiment which have been directed to the solution of the problem. The effort which has been devoted to obtaining what seems to be almost perfection in such service, and the means by which such perfect service is obtained are indicated in this brochure issued by the Johnson Service Company, explaining and illustrating its devices for use in controlling temperatures and humidity, appliances so perfectly geared and adjusted that they almost seem to function as of themselves.

This result, moreover, is secured at the least possible cost for fuel and upkeep, since the value of such apparatus is regulated largely by what it costs. The large amount of useful data regarding control of temperature and humidity which this brochure contains renders it of great value.



Guilford County Court House, Greensboro, N. C. Architect, Mr. Harry Barton.

Approximately 20,000 Sq. Ft. of ASBESTONE Flooring installed.

Scientifically Made

Asbestone Flooring Chemically and Physically Tested

In the purchase of any article where quality is an important factor—and this applies with unusual force and effect to flooring—it is *good business* to ascertain the stability of the manufacturer. Where a concern, such as Franklyn R. Muller, Inc., has grown to be the largest of its kind, there must be sound reasons for the confidence that makes this growth possible. Be sure you are dealing with a responsible manufacturer if you would safeguard your clients' interests.

This is your protection.

MULLER
ASBESTONE
GUARANTEED PRODUCTS
TRADE MARK

Floor values to meet modern architectural standards must be exceptionally high. *Asbestone* Flooring is recommended by leading architects as the most economical flooring known to modern science. Every shipment is tested before it leaves the factory. It is the *only* standardized flooring of its kind.

It is practically indestructible, resisting the hardest wear for an indefinite period. It is guaranteed not to crack, contract or expand of its own volition. *Asbestone* is adaptable—can be laid at any angle; hygienic, fireproof, resilient, almost noiseless and non-slippery. It is made in single tones or in many color combinations.

Write for samples and prices

FRANKLYN R. MULLER, Inc.
1201 Madison Street
Waukegan, Illinois

Reviews and Announcements

NORTH WESTERN EXPANDED METAL CO., Chicago. "N. W. Expanded Metal Products." Metal lathing.

The various publications being issued by this large manufacturing concern have a high value for architects and builders in that they keep one fully posted as to the latest improvements and developments in the many products which the company markets and the most approved methods of using them. This particular publication, for example, illustrates and gives all necessary data concerning a wide variety of materials, since in addition to dealing with the now well known "Kno-Burn Metal Lath," "Plasta Saver," "Long Span," "Burial Vault" and other varieties of lathing, it deals with channels, corner beads and other accessories likely to be used with lath. All this is made plain by numerous diagrams and drawings of different kinds, while the specifications which are included are so complete that error in actual building would seem to be almost impossible. Interesting data are given regarding the best use of copper.

THE KAWNEER CO., Niles, Mich. "Kawneer Windows in Solid Nickel-Silver." A type of window which cannot rust.

This brochure contains data of every kind regarding the widely known windows manufactured and sold by the Kawneer Company. These windows are made of nickel-silver, a material which is non-rusting and which when oxidized by atmosphere assumes a beautiful olive green color. Their manufacture is by processes which miter or cope the metal members to a mathematically exact fit, securely welding every joint and giving the rigidity and snugness of fit which a serviceable window should possess without the use of bolts or rivets. The gauge of metal used is heavy, so that with ordinary usage the windows cannot be dented or warped. Kawneer windows are supplied in various forms,—casements or double-hung,—and with any desired number or arrangement of panes, and this brochure gives in the form of diagrams and drawings every detail of muntin, bar fastener or friction adjuster, several pages being devoted to giving the specifications for their proper use.

RICHARDSON & BOYNTON CO., New York. "The New Richardson Round Smokeless Boilers." Their utility.

The difficulty with which anthracite coal is obtained in some localities and the utter impossibility of securing it in others lends particular value to apparatus for the economical burning of soft coal, usually to be easily had. The main objection to the use of soft coal is of course the smoke and soot which it produces, but in addition to being objectionable, smoke represents actual waste, since it is really unburned fuel, wasted energy which gives no heat; *smoke represents money actually thrown away.* This brochure describes and illustrates the widely known Richardson Round Boiler, built upon a plan which since it means the turning into heat of every ounce of soft coal, eliminates smoke and consequent soot. The Richardson Round Boiler carries the O. K. of smoke-prevention societies and heating engineers. This booklet explains and illustrates the boiler, built upon a comparatively simple plan, and with no intricate parts to need repairs.

NATIONAL METAL MOLDING CO., Pittsburgh. "National Conduits." A brochure on conduit for wiring.

Conduit of one kind or another is quite necessary in electrical wiring of every kind. Insurance companies' rules of course prescribe its use for enclosing wires where they are concealed within walls, just as the same rules require the use of metal moulding for enclosing surface wires, thus doing away with wires on walls and ceilings which are unsightly as well as dangerous. Then, too, conduit is necessary where wires must be placed underground or embedded in such substances as concrete, and for these uses it is important to use conduit made of some material which will not rust, since the rusting of a conduit's surfaces, particularly its inner surfaces, means that if it becomes necessary to withdraw and replace the wires, it cannot be done, for the rust and scale will cut the insulation or else perhaps cause the choking of the conduit. This booklet describes the many kinds of conduit marketed by this company,—Sherarduct, Economy, Flexsteel, Flextube, etc., and all the accessories and details which the use of conduit involves.

DAVID LUPTON'S SONS CO., Philadelphia. "Lupton Casements of Copper-Steel." Catalog C-122.

So much has been published in magazines having to do with architecture, decoration, etc. regarding the advantages of using casement windows that it would seem their advantages were by this time thoroughly understood and fully appreciated. To keep architects and builders fully informed regarding the utility and excellence of its casements and the plan upon which they operate, as well as to give the details and measurements necessary for their proper specification, this large firm of manufacturers publishes this brochure. The term "copper-steel" may at first be puzzling, but it is here described as a strong, resistant alloy, admirably adapted to the manufacture of objects which must be exposed to weather. Lupton service, available at all the company's dozen or more sales offices, is offered freely to architects, engineers and builders, as is also the company's service to interior decorators in planning proper draperies.

CURTIS LIGHTING, Inc., New York, Chicago and Los Angeles. "Light." A brochure on lighting fitments.

The importance of lighting in connection with building of any kind lends interest to the fixtures by means of which light is distributed. There are, of course, a number of systems of lighting,—direct, semi-direct, indirect, etc.,—and for use with each the ingenuity and skill of manufacturers' designers have devised fittings which perform their work as fixtures besides aiding the architectural appearance of their surroundings. In this brochure a large manufacturing concern illustrates and describes the fixtures which it supplies, simple or elaborate, and made to hang from ceilings, be attached to walls, or to stand on floors or tables. The designs adapt the fixtures to buildings of all architectural styles, and because of the variety of types which it illustrates the publication would be of interest and value in the office of any architect. The services of Curtis Lighting, Inc., are offered to architects who may have need of them in solving special lighting problems which arise in practice.

S. Ralph Fetner announces his removal to 111West Adams Street, Jacksonville, Fla., where he will be associated with Mellen C. Greeley.

Haskell H. Martin and William R. Ward, Jr., have terminated their partnership as Martin & Ward, but are continuing practice individually at Greenville, S. C.

Warren, Knight & Davis, of Birmingham, Ala., announce the opening of a branch office in the American National Bank Building, Pensacola, Fla., Chandler C. Yonge in charge.

Franklin Cox Stanton has opened offices for the practice of architecture in the Capital National Bank Building, Olympia, Washington. He would appreciate catalogs and samples of building materials from manufacturers.

Announcement is made of the dissolution of the architectural firm of Rose & Peterson, Kansas City, Kansas. W. W. Rose will continue practice at 432 Brotherhood Block, while D. B. Peterson has taken temporary quarters at 818 Minnesota Avenue, Kansas City, Kansas. Mr. Peterson would be glad to receive manufacturers' catalogs.

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Index to Advertising Announcements

Acme Brick Company 10
Adam Electric Company, Frank 150
Alberene Stone Company 16
American Blower Company 137
American Brass Company, The 89
American Cement Tile Mfg. Co. 18
American Face Brick Association 30, 31
American Laundry Machinery Co. 164
American Lead Pencil Co. 64
American Radiator Company 13, 135
American Seating Company 60
American Sheet and Tin Plate Co. 126
American Stove Company 142
American Walnut Mfrs. Ass'n 58
Appalachian Marble Company 26
Armstrong Cork and Insulation Company 93, 120
Armstrong Cork Co. 125
Art Metal Construction Company 156
Associated Metal Lath Manufacturers, Inc. 32
Associated Tile Manufacturers 24
Athey Company 166
Atlantic Insulated Wire and Cable Co. 106
Austral Window Co. 146
Automatic Electric Company 97

Barrett Company, The 124
Batchelder-Wilson Company 19
Birch Manufacturers, The 82
Bird & Son, Inc. 76
Bishopric Manufacturing Co., The 50
Bonded Floors Company 57
Brasco Manufacturing Co. 107
Brunswick-Balke-Collender Co. 191
Bryant Heater & Mfg. Company 134
Bull Dog Floor Clip Co. 118

California White and Sugar Pine Mfrs. Ass'n 101
Carey Co., The Philip 99
Carlhian of Paris, Inc. 56
Carter-Bloxonend Flooring Company 29
Central Tube Co. 180
Chamberlin Metal Weather Strip Co 157
Chase Metal Works 183
Chicago Pump Co. 176
Circle A Products Corporation 42
Clinton Metallic Paint Co. 40
Clow & Sons, James B. 95
Columbia Mills, Inc. 47
Compound & Pyrono Door Co., The. 152
Concrete Engineering Co., The 6
Corbin, P. & F. 38
Crittall Casement Window Company 148
Curry & Co., H. Douglas 62
Curtis Company 80
Curtis Lighting, Inc. 112
Cutler Mail Chute Co. 102

De Long Furniture Company 64
Detroit Show Case Company 108
Detroit Steel Products Company 154, 155
Devoe & Raynolds 75
Dixon Crucible Co., Joseph 73
Dougherty & Sons, W. F. 84
Douglas Company, The John 184
Duraflex Company, The 122

Eagle-Picher Lead Company 67, 70
Eljer Company 198
Excelso Specialty Works 174

Federal Cement Tile Company 170
French & Co., Samuel H. 62
Fulton Company, The 91

Galassi Company, The 118
General Electric Company 144, 145
General Fireproofing Company 8, 179
Georgia Marble Company, The 20
Gillis & Geoghegan 84
Glidden Company, The 68
Globe Ventilator Company 130
Goder Incinerator Company 112
Goulds Manufacturing Co. 176
Grinnell Company 104
Guastavino Co., R. 7
Guth Company, The Edwin F. 116

Hamlin, Irving 40
Hart & Hegeman 143
Hartmann Sanders Co. 80
Hauserman Co., The E. F. 41
Heggie Simplex Boiler Corporation 9
Hess Warming & Ventilating Co. 130
Holophane Glass Co. 117
Holorib, Inc. 129
Holtzer-Cabot Electric Co. 149
Hope & Sons, Henry 146
Horn Company, A. C. 177
Hydrex Asphalt Products Corp. 85

Illinois Engineering Company 197
Imperial Brass Manufacturing Co., The 182
Improved Office Partition Company 52
International Nickel Co. 162

Jacobson Mantel & Ornament Co. 64
Jenkins Bros. 186
Johns-Manville, Inc. 132
Johnson Service Company 175

Karolith Corporation 147
Kawneer Co., The 109
Kelsey Heating Company, The 131
Kensington Mfg. Company 55
Kent-Costikyan Trading Company 60
Kerner Incinerator Co., The 104
Kewanee Boiler Company 4
Kewanee Private Utilities Co. 112
Kewaunee Mfg. Co. 174
Keystone Roofing Manufacturing Company 127
Kny-Scheerer Corporation of America 172
Kohler Company 189
Koven, L. O. & Bro. 167

Lehigh Portland Cement Company 103
Long-Bell Lumber Co., The 81
Louisville Cement Co. 28
Ludowici-Celadon Company, The 35
Lupton's Sons Company, David 153

MacBeth-Evans Glass Co. 115
Martin Varnish Co. 74
Massillon Steel Joist Company 4th Cover
Master Builders Company, The 123
McKinney Mfg. Company 33
Metropolitan Electric Mfg. Co. 146
Miller & Co., G. L. 171
Milwaukee Corrugating Co. 163
Mississippi Wire Glass Co. 78
Mount & Robertson, Inc. 39
Mueller Company 132
Muller, Inc., Franklyn R. 193
Murphy Door Bed Co., The 63
Murphy Varnish Company 71

Nash Engineering Co. 17
National Fire Proofing Company 1
National Lead Company 66
National Metal Molding Co. 181
National Mortar & Supply Co. 110, 111
National Terra Cotta Society 22
National Tube Co. 178
Nelson Corp., The H. W. 136
Never Split Seat Company 188
New Jersey Wire Cloth Company 102
New Jersey Zinc Company 21
Nicholas Power Company 174
North Western Expanded Metal Co. 5
Norton Company 121

O'Brien Varnish Company 78
Otis Elevator Company 84

Pacific Lumber Co., The 77
Palmer Lime & Cement Co. 102
Peelle Company, The 151
Pfaudler Co., The 82
Pittsburgh Reflector Company 113
Portland Cement Association 105
Pratt & Lambert, Inc. 65
Precision Machine Company 173

Ramp Buildings Corporation 11
Raymond Concrete Pile Company 3
Reading Iron Company 3rd Cover
Reed Air Filter Company 25
Richards Wilcox Mfg. Co. 2nd Cover
Ritter Lumber Co., W. M. 83
Roddis Lumber & Veneer Company 79
Rookwood Pottery Company, The 60
Rubberstone Corporation 118
Ruberoid Co., The 124
R. U. V. Co., Inc., The 168

Samson Cordage Works 114
Sanymetal Products Co., The 40
Sargent & Company 34
Schumacher & Co., F. 59
Sherwin-Williams Co., The 72
Simplex Wire and Cable Co. 104
Smith & Egge Mfg. Co., The 176
Smyser-Royer Co. 114
Sonneborn Sons, Inc., L. 195
Southern Cypress Mfrs. Ass'n 80
Speakman Company 190
Spencer Turbine Company, The 130
Standard Conveyor Co. 165
Standard Gas Equipment Corp'n 140, 141
Standard Heater Company 133
Stone & Webster, Inc. 23
Straus & Co., S. W. 86

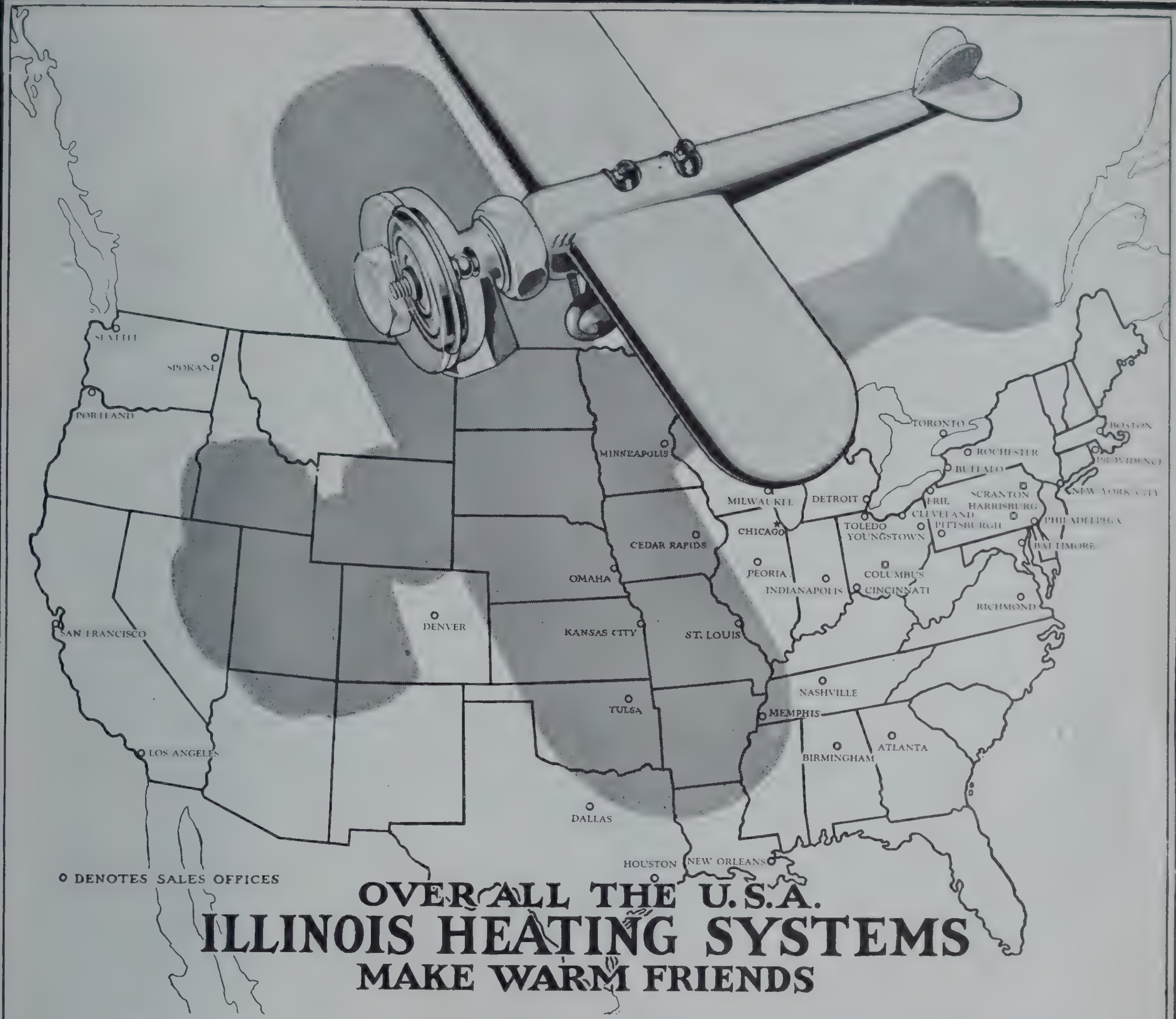
Toch Bros., Inc. 78
Todhunter, Arthur 76
Trane Company, The 187
Trenton Potteries Co. 185
Truscon Steel Co. 2
Turner Construction Company 48
Tuttle & Bailey Mfg. Co. 62

United States Gypsum Company 36
United States Mineral Wool Co. 114
United States Radiator Corporation 138
United States Rubber Co. 119

Valentine & Company 69
Van Range Co., The John 139
Van Zile Ventilating Co. 124
Vonnegut Hardware Co. 37

Wallace & Tiernan Co. 169
Wallpaper Mfr's Ass'n 61
Warren Webster & Co. 159
Western Brick Company 82
Western Electric Company 132
Wheeling Corrugating Corp. 160, 161
Whiting-Adams Company 76
Williams Slate Co., J. W. 128
Wilmot Castle Co. 27
Wilson Corporation, The J. G. 158

Zenitherm Company 12
Zouri Drawn Metals Co. 14, 15



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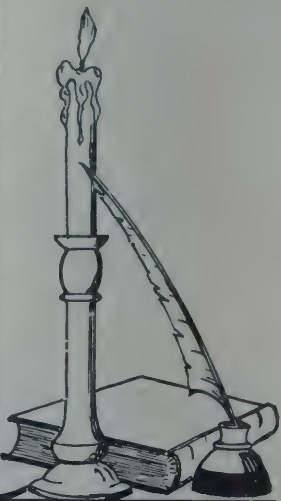

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